

**AMERICAN**

# **RAILROAD JOURNAL.**

**STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.**

**HENRY V. POOR, *Editor.***

**SATURDAY, DECEMBER 12, 1857.**

**Second Quarto Series, Vol. XIII., No. 50.---Whole No. 1,130, Vol. XXX.**

**ESTABLISHED IN 1831.**

**NEW-YORK:**

**PUBLISHED WEEKLY, BY**

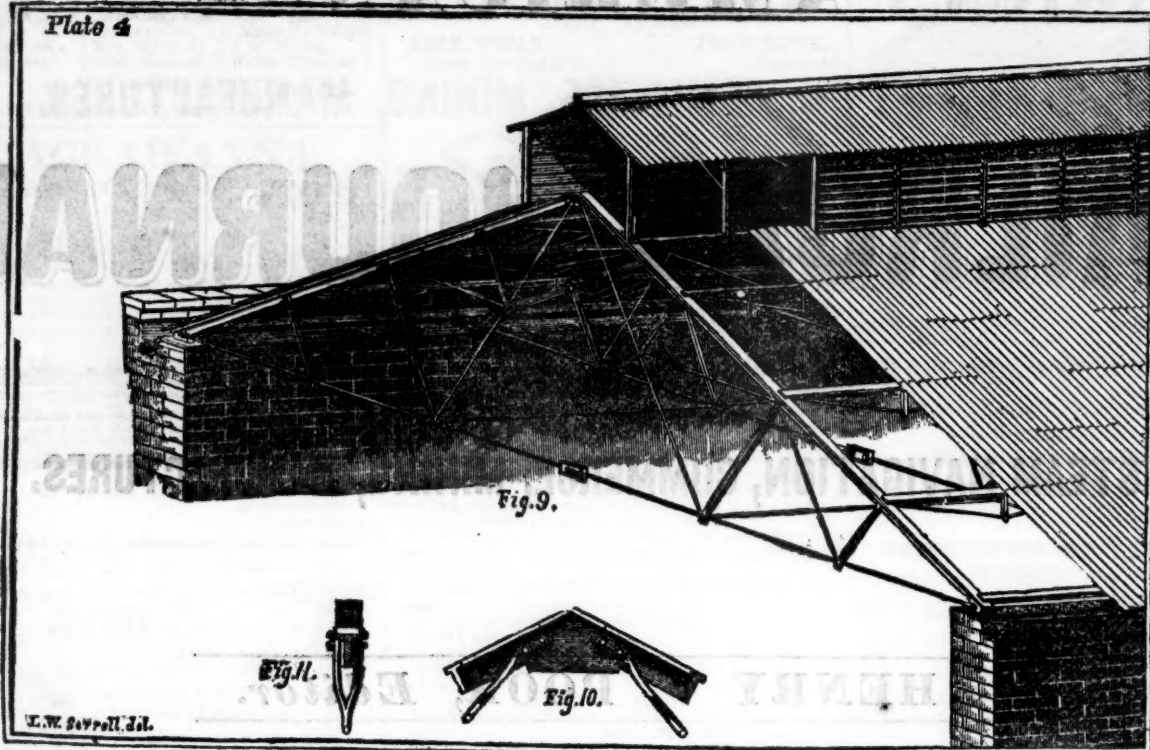
**JOHN H. SCHULTZ & CO.**

**Front Room, Third Floor,**

**No. 9 Spruce Street.**

# ROOFING.

Plate 4



THE subscribers, manufacturers and importers of **PATENT GALVANIZED TINNED IRON**, respectfully invite the attention of railroad companies and others interested in the construction of Fire-proof Buildings and Roofs, to this material, which is highly recommended for strength, durability, and lightness, combined with elegance in appearance. The advertisers can refer particularly to Roofs they have

erected in the New York Navy Yard, also to that of the New Jersey Railroad and Trans. Company, Jersey City. In Great Britain it is used at all the railroad depots and navy yards in enormous quantity. The corrugated sheets, as on the above iron framed roof, are equally suited to lay upon wood framing, either straight, or curved.

Plain sheets are prepared to lay on boarded roofs (such as have had tin coverings) by making a flute on the side so as to fasten to a wood roll, reaching from ridge to eaves and placed between each tier of sheets, see figs. 6 and 8 below. The transverse joints are secured as shown by fig. 7.

Estimates and designs for Buildings and Roofs, &c., &c.

Fig. 6.



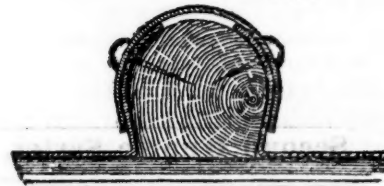
1/2 full size.

Fig. 7.



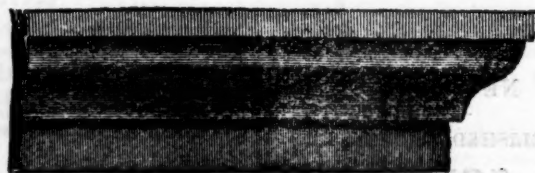
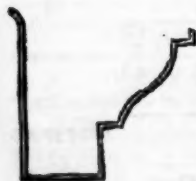
1/2 full size.

Fig. 8.



1/2 full size.

Galvanized iron Cornices to any size or pattern, Ridge Caps, and Spouts.  
TELEGRAPH AND FENCING WIRE, **BLACK SHEET IRON** SHIPS' IRON WORK,  
LIGHTNING RODS. CORRUGATED. SPIKES, NAILS, &c., promptly galvanized.



**MARSHALL LEFFERTS & BROTHER,**  
Corner of Broad and Beaver sts., NEW YORK.



# AMERICAN RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, Editor.

ESTABLISHED IN 1831.

PUBLISHED WEEKLY BY J. H. SCHULTZ & CO., AT NO. 9 SPRUCE ST., NEW YORK, AT FIVE DOLLARS PER ANNUM IN ADVANCE.

SECOND QUARTO SERIES, VOL. XIII., No. 50.]

SATURDAY, DECEMBER 12, 1857.

[WHOLE No. 1,130, VOL. XXX.]

MESSRS. ALGAR & STREET, No. 11 Clements Lane, Lombard Street, LONDON, are the authorised European Agents for the Journal.

## PRINCIPAL CONTENTS.

Orange and Alexandria Railroad .....	785
Virginia and Tennessee Railroad .....	786
Iron Manufacture .....	787
Wilmington and Manchester Railroad .....	789
On Currency—No. 4 .....	792
Amount of Saving by the Use of Coal over Wood .....	793
Finances of the United States .....	794
Journal of Railroad Law .....	795

## American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & CO. No. 9 SPRUCE ST.

New York, Saturday, December 12, 1857.

### H. V. POOR'S RAILROAD MAP.

We have in course of preparation, nearly completed, and shall be ready to issue on or before the 1st of January next, a "New and complete MAP OF ALL THE RAILROADS IN THE UNITED STATES AND CANADAS, in operation and progress." A copy of this map, neatly done up in pocket form, we propose to send, free of postage, to each of our subscribers upon receipt of remittances from them, in payment of their subscription up to, and including, the year 1858.

Address JNO. H. SCHULTZ & CO.,  
American Railroad Journal,  
Office, 9 Spruce Street, NEW YORK.

### New York Central Railroad.

We have received, but not in season for this week, the report of this Company submitted to the recent meeting of the stockholders. The following gentlemen were elected Directors for the current year:

ERASTUS CORNING, of Albany,  
DEAN RICHMOND, of Buffalo,  
JOHN H. CHEDELL, of Auburn,  
HORACE WHITE, of Syracuse,  
LIVINGSTON SPRAKER, of Palatine,  
ALONZO C. PAIGE, of Schenectady,  
CORNELIUS L. TRACY, of Troy,  
JACOB GOULD, of Rochester,  
ISAAC TOWNSEND, of New York,  
NATHANIEL THAYER, of Boston,  
JOHN V. L. PRUYN, of Albany,  
JOHN L. SCHOOLCRAFT, of Albany,  
JOHN D. WOLFE, of New York.

### Orange and Alexandria Railroad

In the Journal, for November 14th, we gave a condensed statement of the operations of this road for the year ending September 30th, 1857. Since that date, we have received a full Report of the Directors, to the stockholders, at the Eighth Annual Meeting, held in Alexandria, on the 22nd of October, from which we compile the following—

The length of main line is 88½ miles; do. of Warrenton Branch, 9 miles; do. of side tracks, 4½ miles; total, 102 miles.

The number of miles run by locomotives of this company was, 178,760; by those of the Manassas Gap Company, 14,140; total miles run, 193,900.

The company's General Statement is as follows:

	Dr.
Capital Stock—Original .....	\$1,037,500.00
Not Preferred .....	280,000.00
Preferred .....	140,000.00
	\$1,457,500.00

Subscribed by Corporations of Alexandria, Warrenton and individuals .....	\$443,000.00
State of Virginia .....	664,500.00
	\$1,107,500.00

Preferred Stock—Subscribed by Corporation of Alexandria and individuals .....	\$140,000.00
State of Virginia .....	210,000.00
	350,000.00

Loans on bonds of the Company—	
1st issue .....	400,000.00
Bills payable .....	58,460.01
Due on unsettled bills .....	44,756.18
Revenue fund for dividend of Oct. 1, 1857 .....	49,584.46
Revenue from freight, passengers and mail .....	989,724.69
Profit and loss account .....	5,882.77
Rent .....	222.00
Checks outstanding .....	7,592.13
	\$3,013,222.24

### LYNCHBURG EXTENSION:

Stock collections .....	\$344,278.73
Bonds sold .....	653,000.00
Bonds earned by contractors not delivered .....	28,386.55
Due contractors in money .....	87,591.08
Due engineers and others .....	3,172.41
Bills payable .....	141,215.82
	1,257,044.59
	\$4,270,866.83

Cr.

By individuals .....	\$12,184.72
By State of Virginia .....	7,338.90
Construction, equipment, &c. ....	2,046,420.83
General charges .....	345,490.31
Due on freight and other bills .....	18,829.05
Mail expenses between Alexandria and Washington City, including the running of the George Page .....	6,674.42
Working road, &c., from commencement .....	449,196.90
Wharf property in Alexandria .....	22,600.00
Stock of Company, subject to redemption .....	13,715.00
Stock held by Company .....	41,250.06
Steamboat George Page .....	14,195.85
Materials on hand, lumber, &c. ....	15,353.74
Cash in Banks available .....	16,847.93
Lynchburg Extension .....	1,280,769.18
	\$4,270,866.83

The expenditures for repairs of road-bed and railway were \$29,627 81; repairs of bridges, 432 38; renewal of track, \$7,726 83—total for maintenance of road, \$37,787 02.

The rolling stock of the Company consists of 12 locomotives, 8 passenger, 4 baggage, and 98 freight cars. During the year, 33,583 tons of freight have been transported—equal to one ton for 1,683,292 miles, at a cost of 3½ cents per ton per mile. Accompanying the Superintendent's Report, are full details of the business and property of the Company.

### RECEIPTS.

From passengers .....	\$135,202 69
" freight .....	87,640 93
" mails, etc. ....	50,401 20

Total receipts .....

### EXPENSES.

For maintenance of road .....	\$37,787 02
Do. motive power .....	47,298 87
For transportation .....	33,407 33
For salaries, cars, etc. ....	20,627 39

Total working expenses .....

Leaving balance of net earnings .....

The Report of the General Superintendent shows the road to be in excellent condition and the bridges in good order.

The Report of the Chief Engineer contains a full statement of the operations on the Lynchburg Extension. 700 laborers are employed, and the graduation of 40 sections of one mile each is in progress

and 14 completed. Of the 37 bridges, 19 are completed. It is hoped to complete the road to Lynchburg during the year 1858.

The officers of the Company are as follows:

JOHN S. BARBOUR, JR., *President.*

JAMES H. REID, *Clerk and Treasurer.*

THOMAS C. ATKINSON, *Chief Engineer of Lynchburg Extension.*

HENRY W. VANDEGRIFT, *General Superintendent.*

Henry Daingerfield, William C. Rives, Directors on the part of the private stockholders.

Inman Horner, John Willis, Henry Shackelford, Directors on the part of the State.

#### Virginia and Tennessee Railroad.

We have received the report of this Company for the fiscal term ending June 30, 1857. The time for closing the fiscal year having been changed from September 30th to that date, the report covers only the operations of the road for nine months—thereby omitting the transactions of the heaviest quarter of the year. The receipts for these nine months were:

From passengers.....	\$90,844 15
" freight.....	190,176 10
" U. S. Mail.....	15,350 84
" Express freight.....	2,107 29
	<hr/>
	\$298,478 38

And the expenses were:

For repairs of road.....	\$41,379 48
" engines.....	20,545 11
" cars.....	9,355 43
" depots and	
water stations.....	672 30
For train expenses, including wood, oil and waste..	84,439 26
For proportion of salaries chargeable to this acc't.	3,736 28
	<hr/>
	160,127 86

Showing net receipts.....\$138,350 52

Although these figures show a decrease of \$23,570 22 in the receipts, when compared with those of the previous year, they are \$78,938 75 in excess of the corresponding nine months of that year, being an increase of 36 per cent. If to the receipts of July, August and September, 1856, is added 36 per cent. increase, it will make \$139,412 19, and swell the receipts for the whole year to \$437,890 57—an increase over 1856 of \$115,841 97; very nearly the estimate made in the last report. The per centum of expenses on receipts is 53.65. At the same ratio, by extending the operations to a year, the expenses are reduced to 48.75 per cent. of the receipts. The net gain shows 2.10 per cent. on the cost of the road and branch. For a year, at the same rate, it would be 3.41; and upon the main stem alone it would be 3.55 per cent. on its cost.

The entire business of the Salt Works Branch was 2,036 tons, the receipts for the moving of which was \$2,692 20; and for the movement of the same freight over the main stem to and from the branch, \$12,445 38—making the entire receipts \$15,137 58.

In comparing the operations of the last two years, it will be observed that there has been an addition of 32 per cent. in the length of the road; an increase of 15 per cent. of train service; and the expenses show an increase of 5 per cent. of expenses on receipts. The increase of tonnage was upwards of 25 per cent.; the average amount, 17½ miles further, yielding an increase per ton of over 10 per cent. The increase of passengers was

18 per cent; the increase of average travel 4½ miles; and the increase yield of each passenger, 14 cents. The general movement of tonnage has been about 65 per cent. East, and 35 per cent. West—showing the movement of empty cars West 25 per cent., in order to accommodate the excess of tonnage East. The increase of tonnage was 11 per cent. East, and 33 per cent. West. The tonnage of merchandise remained about the same as the preceding year; that of the products of the forest, increased about 200 per cent.; of the mines, one-third; of the animal, double; and of manufactures, nearly quadruple the preceding year.

The compensation for mail service has been increased to \$30,600 per annum, from July 1st, being an addition of 50 per cent.; and when all the connections are formed a much larger amount is anticipated from this service.

The road and buildings are in excellent order, the machinery and equipments in good condition, and the operations have been marked by much regularity.

The cost of the road, as made up to June 30th, was .....	\$6,346,538 51
Cost of Salt Works Branch.....	243,240 53
	<hr/>
	\$6,589,779 14

To complete the Main Stem, as first designed, will require about \$25,000; Salt Works Branch, \$4,000; total, \$29,000.

Two freight engines have been purchased during the year at a cost of \$20,000. Other engines and cars are required, the whole cost of which may be estimated at \$35,000.

The amount of land damages settled during the year was \$4,456 40.

The line of telegraph has been completed, and is in operation to Bristol. The labor performed by the company, in setting posts, transporting materials, etc., amounting to \$2,400, has been paid for in the capital stock of the Telegraph Company at par.

The company have severed their connection with Adams & Co., and undertaken the whole express business on their own account, believing that the change would result advantageously.

The last year commenced with a cash balance on hand of.....	\$76,054 02
Received from all sources during the year .....	420,235 29
	<hr/>
	\$496,289 31

And the disbursements have been ....	463,281 44
	<hr/>
	\$33,007 87

Leaving a balance of .....\$33,007 87  
The remaining half of the last subscription by the State, of \$500,000, has been paid to the company in registered 6 per cent. bonds of the State at par. There are at this time \$187,600 of these bonds remaining on hand, and the sum of \$65,587 92 has been raised by an hypothecation of a portion of them.

The subscription and collection of stock during the past year was:

Amount unpaid Oct. 1, 1856 .....	\$344,442 95
Subscribed during the year by individuals .....	1,500 00
	<hr/>
	\$345,942 95

Of this there has been collected:

Of individuals.....	\$10,520 20
Of the State .....	250,000 00
	<hr/>
	260,520 20

Leaving unpaid .....	\$85,422 75
----------------------	-------------

—of this amount there is due from individuals \$26,522 75, and from the State \$58,900.

To complete the State subscription to the original capital stock, a further subscription of \$1,100 is to be made, which will increase the amount due from the State to \$60,000. This amount has already been advanced by the State to the company in the form of a temporary loan.

The debt of the company was stated in the last report at \$371,527 33; it is now \$381,432 32.

The entire liabilities of the company, exclusive of its future receipts and current expenses, are \$691,782 30; and its resources, \$340,111 65—leaving balance of indebtedness, \$351,670 65.

This amount being entirely applicable to construction, the directors suggest the policy of funding it, rather than to apply the future receipts of the road to its liquidation. They also recommend the funding of the bonds of the Salt Works Branch as they mature, which will be \$50,750 on the 1st day of January in each of the years 1858, '59, '60, '61. The directors urge the propriety of this course, for the reason that \$372,443 63 of the surplus earnings of the road have already been applied to construction. If this course be pursued, the operations of the road will be relieved of an unnecessary burden, and will be placed in its true position, with the capacity fully to sustain itself; and enable it at an early day to make a desirable return to the stockholders.

The yearly liabilities, chargeable to the receipts of the road are \$265,975; the net earnings of the road for the year ending June 30th, 1858, are estimated at \$275,000—an excess of \$9,025. In 1859, \$325,000—an excess of \$59,025. In 1860, \$400,000—an excess of \$184,025. In 1861, \$500,000—an excess of \$234,025; or a total surplus in four years of \$436,700, to be divided upon a capital stock of \$2,948,700.

If this policy be adopted, the condition of the company will be as follows:

Funded debt .....	\$2,523,500 00
Debt proposed to be funded .....	\$351,670 65
Bonds Salt Works Br'ch .....	203,000 00
	<hr/>
	554,670 65

Total funded debt.....	\$3,078,170 65
Capital stock (original).....	2,948,700 00
" " (preferred) .....	555,500 00
	<hr/>
	\$6,582,370 65

Of the funded debt above stated, \$53,375 has already been paid into the sinking fund, thus reducing the debt to \$3,024,795; and which will be annually reduced by the provision of one per cent. of the debt to be paid out of the receipts of the road, and the compound interest on the sinking fund itself.

The original chartered capital of the company was.....	\$3,000,000
Increased December 7, 1852 .....	1,500,000
" March 13, 1856 .....	500,000
	<hr/>
	\$5,000,000

Present chartered capital..\$5,000,000

Of which there has been subscribed .....	\$3,504,200
Pledged to the holders of first mortgage bonds until December 31, 1859 .....	500,000
Pledged to the holders of bonds of the mortgage of March 15, 1854, until December 31, 1868 .....	23,500
Pledged to the holders of the enlarged mortgage bonds, until June 30, 1874. ....	500,000
Leaving unappropriated .....	472,300
	<hr/>
	\$5,000,000



## GENERAL STATEMENT.

## Receipts:

Capital stock subscribed by State ..\$1,798,900 00  
Deduct amount unpaid ..... 58,900 00

\$1,740,000 00

Do. by others .....\$1,148,700 00  
Amount unpaid ..... 26,522 75

Preferred stock subscribed by State 500,000 00  
Do. by others ..... 55,500 00

Amount overpaid by stockholders .. 586 65  
Do. loaned by the State ..... 1,000,000 00

Do. advanced by the State ..... 90,000 00  
Do. rec'd for interest on State Bonds 4,643 25

Do. do. rents ..... 393 75  
Do. do. sales of bags ..... 845 13

First mortgage, payable Dec. 31, 1872 500,000 00  
Second do., payable Dec. 31, 1868.. 23,500 00

Enlarged do., do. June 30, 1884.. 1,000,000 00  
Salt Works Branch mortgage ..... 203,000 00

Premiums on first mortgage bonds .. 6,275 00  
Road earnings to Sept. 30, 1856.... 573,810 34

Do. since Sept. 30, 1856..... 298,704 71

Total amount of receipts .....\$7,119,436 08

## Liabilities:

Bills payable running to maturity .....\$177,421 96  
Plain bonds do. .... 26,944 18

Borrowed on pledge of State bonds ..... 65,587 92  
Due to contractors ..... 13,682 30

Do. agents ..... 748 40  
Do. officers on account of salaries ..... 5,892 58

Do. other roads and stage lines ..... 143 82  
Do. individuals for interest on preferred stock 745 93

Do. Richard Norris & Son for rolling stock. 11,535 10  
Do. individuals on open account ..... 77,226 94

Do. State of Virginia for interest on loan and advance ..... 223,097 48  
Do. three quarters negro hire for 1857..... 49,172 26

652,198 87

\$7,771,634 95

## Disbursements.—Main Line:

Graduation .....\$2,273,567 59  
Masonry ..... 151,196 61

Bridges ..... 159,251 57  
Superstructure, including iron and cross-ties ..... 1,925,973 02

Depots and water stations ..... 223,828 59  
Engineering expenses ..... 129,851 11

Land damages ..... 81,256 83  
Real estate ..... 44,648 59

Personal property ..... 6,033 15  
Rolling stock, including engines and cars ..... 552,395 18

Discounted in sales of Enlarged Mortgage Bonds ..... 283,240 53  
Do. State Bonds ..... 16,071 00

Profit and Loss account ..... 10,599 10  
Interest and exchanges ..... 91,917 61

Interest due State on loan and advance ..... 223,097 48  
Miscellaneous ..... 184,989 49

Machinery, etc. .... 328,819 42  
Fuel, oil and cotton waste, since Sept. 30, 1856 ..... 48,400 84

Strain expenses, since Sept. 30, 1856. 37,754 23  
Paid State in part of loan. \$7,969 68

Do. do. advance. 30,000 00  
Do. 1st Mortg. coupons. 146,283 31

Do. 2d do. .. 3,090 00  
Do. Enlarged do. .. 53,733 93

Do. Salt Works Branch coupons ..... 15,150 00

256,226 92

Total amount of expenditures.\$7,029,098 86

## Branches:

Salt Works Branch ....\$248,215 27  
Montgomery Coal Br'ch. .... 809 88  
Cumberland Gap Br'ch. .... 3,088 73

247,113 88

## Resources:

State Bonds on hand ....\$187,600 00  
Bills receivable running to maturity ..... 27,782 92

Due from agents ..... 37,700 04  
Do. contractors ..... 27,681 42

Do. other roads & stage lines ..... 6,668 41  
Do. Selden, Withers & Co. .... 1,063 69

Do. individuals on open account ..... 33,978 87  
Telegr. stock—24 shares ..... 2,400 00

State subscription unpd ..... 58,900 00  
Individual do. do. .... 26,522 75

Cash deposited to pay Salt Works Br. coup'ns July 1, 1857 ..... 6,120 00

Do. do. other coupons, July 1, 1857 ..... 42,975 00  
Cash in hands of Treas'r ..... 33,007 87

Do. Paymaster ..... 3,022 74

495,423 21

\$7,771,634 95

## OFFICERS.

JNO. ROBT'N McDANIEL, *President.*

WM. H. HUGHES, *Secretary.*

F. G. MORRISON, *Treasurer.*

C. W. CHRISTIAN, *Auditor.*

JAMES H. BUFORD, *Resident Engineer.*

W. C. SMITH, *General Superintendent.*

*Directors*—Henry Davis, Wm. A. Read, Thos. L. Preston, Dexter Otey, Jno. M. Preston.

## Iron Manufacture.

*The Chemical Changes which Pig Iron undergoes during its conversion into Wrought Iron.*  
—By F. CHACE CALVERT, F.C.S., and M.R.A., of Turin, and RICHARD JOHNSON, Esq.

Wishing to make some improvements in the manufacture of iron, we carefully examined the various analyses which had been made of pig iron and wrought iron; but we found that no comparison could be made between the recorded results, as the samples analyzed had been obtained from different sources, and also as no detailed analysis had been published of the various chemical changes which pig iron undergoes in the process of puddling during its conversion into wrought iron. We therefore decided to undertake this task, with the hope of throwing some light upon this important operation in the manufacture of iron, and of thereby enabling practical men to make those improvements in the puddling of iron which on many accounts are so much to be desired.

To fully investigate and closely follow the progressive and interesting chemical changes which pig iron undergoes during its conversion into wrought iron, we took samples every five or ten minutes after the pig iron had melted in the furnace. These chemical actions are clearly defined in the furnace by the peculiar appearance which the mass assumes as the operation proceeds.

It is necessary that we should describe in a rapid manner the physical conditions which pig iron assumes during its conversion into wrought iron. When first heated in a puddling furnace, it forms a thick, pasty mass, which gradually becomes thin, and as fluid as mercury. When it has reached this point it experiences a violent agitation, technically called "the boil," which is produced no doubt by the oxidation of the carbon, and the escape of the carbonic oxide then generated. During this period of the operation the mass swells to several times its primitive bulk, and the puddler quickly agitates the melted mass to facilitate the oxidation of the carbon. After a short time the mass gradually subsides; the puddler then changes his tool, and takes the "puddle" to

gather with it the granules of malleable iron floating in the melted mass of scoria or slag. The granules or globules of iron gradually weld together and separate from the scoria; and this separation is hastened by the puddler gradually forming large masses, called balls, weighing about 80 lbs., from which the scoria drains out. This part of the operation requires great skill in the puddler; for nearly the whole of the carbon has been oxidized, so that if the current of air is not managed with great care, the iron itself is oxidized, or as it is technically termed, "burnt;" and thus not only does great loss ensue in the quantity of malleable iron produced, but also the iron containing a certain quantity of oxide of iron is brittle and of bad quality.

We shall now examine the various chemical changes which pig iron undergoes during its conversion into wrought iron.

The iron we took for our experiments was a good cold-blast Staffordshire iron; the pig was rather gray, being of the quality used for making iron wire, or a gray No. 3. Its composition was as follows:

	First Analysis.	Second Analysis.	Mean.
Carbon .....	2.320	2.280	2.275
Silicium .....	2.770	2.670	2.720
Phosphorus .....	0.580	0.710	0.645
Sulphur .....	0.318	0.288	0.301
Manganese and aluminium .....	traces.	traces.	.....
Iron .....	94.059	94.059	94.059
	100.047	99.957	100.000

224 lbs. of the above pig iron were introduced at 12 o'clock, on the 4th of April, 1856, into a puddling furnace which had been cleaned out with malleable iron scraps. After thirty minutes the pigs began to soften and to be easily crumbled, and ten more had hardly elapsed when they entered into a state of fusion. The first sample was taken out of the furnace at 12 h. 40 m. p. m., from the centre of the melted mass with a large iron ladle and poured on a stone flag to cool. The flue of the furnace, which up to this time had been kept open, was now nearly closed by a damper at the top of the chimney, so that the products of combustion came out by the door of the furnace and other openings, whilst little or none escaped by the chimney.

## Appearance of the Sample.

On breaking the sample as taken out of the furnace, it had no longer the appearance of gray No. 3 pig iron, but a white, silvery, metallic fracture, similar to that of refined metal. The rapid cooling of the sample was no doubt the cause of the change noticed, for it contained quite as much carbon as the pig iron used; and further, the carbon was in a very similar condition, as in both cases a large quantity of black flakes of carbon floated in the acid liquors in which the iron was dissolved. The following is the amount of carbon and silicium which the above sample contained per cent.:

	First Analysis.	Second Analysis.	Mean.
Carbon .....	2.678	2.780	2.726
Silicium .....	0.893	0.938	0.915

These results are highly interesting, as they show that the iron had undergone during the forty minutes which it had been in the furnace, two opposite chemical changes; for whilst the proportion of carbon had increased, the quantity of silicium had rapidly decreased. This curious fact is still further brought out by the sample which we took out of the furnace at 1 p. m., or twenty minutes later than the last sample analyzed, as is shown in this table:

	Carbon.	Silicium.
Pig iron used .....	2.275	2.720
1st sample taken out at 12h. 40m. ..	2.726	0.915
2d " " " 1h. 0m. ....	2.905	0.197

Therefore the carbon had increased 0.625, or

21.5 per cent. of its own weight, and the silicium had decreased in the enormous proportion of above 90 per cent. It is probable that these opposite chemical actions are due, in the case of the carbon, to the excess of this element in a great state of division, or in a nascent state in the furnace, and that under the influence of the high temperature it combines with the iron, for which it has a great affinity, whilst the silicium and a small portion of the iron are oxidized and combined together to form protosilicate of iron, of which the scoria or slag produced during this first stage of puddling consists, and which plays such an important part in the remaining phenomena of the puddling process.

**2d Sample, taken out of the furnace at 1h. 0m. P. M.**  
This sample contained the following quantities of carbon and silicium:

	First Analysis.	Second Analysis.	Mean.
Carbon.....	2.910	2.900	2.905
Silicium.....	0.226	0.168	0.197

It had the same white, silvery appearance as No. 1; but had this difference, that it was slightly malleable under the hammer, instead of being brittle like No. 1. The scoria also was on the upper surface of the mass when cold, and not mixed with the metallic iron, as in succeeding examples.

**3d Sample, taken out at 1h. 5m. P. M.**

The mass in the furnace having become very fluid, and beginning to swell or enter into the state called "the boil," a small quantity was ladled out. When cold it was quite different from that of the two previous ones, being composed of small globules adhering to each other, and mixed with the scoria; the mass therefore, was not compact, like the former ones, but was light and spongy; its external appearance was black, and the small globules when broken presented a bright metallic lustre, and were very brittle under the hammer. We had for some time considerable difficulty in separating the scoria from the globules of iron; but we found that by pulverizing the whole for a long time, the scoria was reduced to impalpable powder, and by sieving we could separate it from the iron, which was much less friable. The iron thus cleansed from its scoria gave us the following results:

	First Analysis.	Second Analysis.	Mean.
Carbon.....	2.466	2.421	2.444
Silicium.....	0.189	0.200	0.194

**4th Sample, taken out at 1h. 20m. P. M.**

As soon as the last sample had been taken out, the damper of the furnace was slightly raised so as to admit a gentle current of air, which did away with the smoke which had been issuing from the puddler's door, and a clear and bright flame was the result. This was done, no doubt, to facilitate the oxidation of the carbon of the iron, and to increase this action the puddler quickly agitated the mass. Under these two actions the mass swelled up rapidly, and increased to at least four or five times its original bulk; and at 1h. 20m., the mass being in full boil, this 4th sample was taken out. Whilst cooling, it presented the interesting fact, that in various parts of it small blue flames of oxide of carbon were perceived, no doubt arising from the combustion of carbon by the oxygen of the atmosphere. It is curious that this phenomenon was not observed in the previous samples. It is due probably to the following causes: first, that the cast iron, having been brought by the boil to a state of minute division, offers a large surface to the action of the oxygen of the air, and thus the combination of the oxygen with the carbon of the iron is facilitated: and second, that at this period the carbon seems to possess little or no affinity for the iron; for one of us has often observed that when pig iron, rich in graphite, is puddled, the carbon is liberated from the iron; for if a cold iron rod is plunged into the mass of melted iron in the puddling furnace, it is covered with iron and abundant shining scales of graphite carbon.

The appearance of this No. 4 sample was most interesting; and the best idea we can give of it is,

that it is so light, and formed of such minute granules as to be exactly like an ant's nest. The particles have no adherence to each other, for by mere handling of the mass it falls into pieces. This is due to each particle of iron being intimately mixed with scoria. The granules of iron have a black external appearance, and are very brittle under the hammer, and when broken they present a bright, silvery, metallic fracture. The scoria was separated by the method above described for No. 3, and the quantities of carbon and silicium which the iron contained were as follows:

	First Analysis.	Second Analysis.	Mean.
Carbon.....	2.335	2.276	2.305
Silicium.....	0.187	0.178	0.182

**5th Sample, taken out at 1h. 35m. P. M.**

This sample is a most important one in the series, as it is the first in which the iron is malleable and flattens when hammered. It was ladled out of the furnace just as the boil was completed, and the swollen mass began to subside. The damper at the top of the chimney was drawn up, so that a very rapid draft was established through the furnace. The puddler also changed his tool, leaving the rubble and taking the puddle to work with. When cold it partakes of the appearance of Nos. 3 and 4 samples, the mass being spongy and brittle, as in No. 4, but less granulated, and like No. 3, being in separate globules, mixed with the scoria. The granules are black externally, but are bright and metallic when flattened. The analysis of these globules proves that the mass of iron in the furnace has lost during the quarter of an hour which has elapsed since the taking of No. 4 sample, a large proportion of its carbon, equal to 20 per cent. of its weight, whilst the silicium, on the contrary, has remained nearly stationary.

	First Analysis.	Second Analysis.	Mean.
Carbon.....	1.614	1.681	1.647
Silicium.....	0.188	0.178	0.185

**6th Sample, taken out at 1h. 40m. P. M.**

The reason why this sample was taken only five minutes after the last sample, was, that the mass in the furnace was rapidly transforming itself into two distinct products, viz.: the scoria on the one hand, and small globules of malleable iron on the other. We attached some importance to this sample, as the workman was on the point of beginning the balling or agglomerating the globules of iron, so as to form large balls of about 80 lbs. weight, to be hammered and rolled out into bars. Whilst the mass taken out for analysis was cooling, small blue flames of oxide of carbon issued from it. These were similar to those observed in Nos. 4 and 5, but were not so abundant. The appearance of this sample was very similar to the last one, with the exception that the scoria was not so intimately mixed with the globules of iron, and that these were larger, and slightly welded together when hammered. The proportions of carbon and silicium were as follows:

	First Analysis.	Second Analysis.	Mean.
Carbon.....	1.253	1.160	1.206
Silicium.....	0.167	0.160	0.163

When these figures are compared with those of the previous analysis, it is interesting to observe, that whilst the silicium remains nearly stationary, the carbon rapidly diminishes; for in the five minutes which elapsed between the taking out of the two samples, there was 28 per cent. of the carbon burnt out. This rapid decrease of carbon in the iron is maintained during the remaining ten minutes of puddling. In fact, in one quarter of an hour, viz.: from 1h. 35m. to 1. 50m., the iron lost 50 per cent. of the carbon which it contained at 1h. 35m.

**7th Sample, taken out at 1h. 45m. P. M.**

This sample was obtained when the puddler had begun to ball. The appearance of the sample, although similar to the last, differs from it by the granules being rather larger, and nearly separated from the scoria, which forms a layer at the top

and bottom of the mass. These granules are also much more malleable, for they are easily flattened under the hammer. This last fact is easily accounted for by the small amount of carbon which it contains, as stated above and shown by these results:

	First Analysis.	Second Analysis.	Mean.
Carbon.....	1.000	0.927	0.963
Silicium.....	0.160	0.167	0.163

**8th Sample, taken out at 1h. 50m. P. M.**

This last sample was taken a few minutes before the balls were ready to be removed from the furnace, to be placed under the hammer, and was a part of one of the balls which were separated and placed to cool. It was observed that no blue flame issued from the mass as it cooled. The appearance of the sample showed that the mass constituting the ball was still spongy, and granulated similar to the previous ones. The only difference was, that the granules adhered together sufficiently to require a certain amount of force to separate one from the other, and also that they were much more malleable under the hammer. They were found to contain the following quantities of carbon and silicium per cent.:

	First Analysis.	Second Analysis.	Mean.
Carbon.....	0.771	0.773	0.772
Silicium.....	0.170	0.167	0.168

We should observe here, that the black coating which covers the granules of iron, even of No. 8 sample, preserves the iron from all oxidation; for none of the samples became oxidized during the nine months they were in the laboratory, exposed to the atmosphere, and to the various acid fumes floating about. This black coating is probably composed of a saline oxide of iron.

**9th Sample.—Puddled Bar.**

The balls taken out of the furnace were hammered, and then rolled into bars, and in these we found the following:

	First Analysis.	Second Analysis.	Mean.
Carbon.....	0.291	0.301	0.296
Silicium.....	0.130	0.110	0.120
Sulphur.....	0.142	0.126	0.134
Phosphorus.....	0.139	....	0.139

**10th Sample.—Wire Iron.**

The puddled bars were cut into billets of about 4 feet in length, and heated in a furnace to a white heat, and then rolled into wire iron. The proportion of carbon, silicium, sulphur, and phosphorus, were as follows:

	First Analysis.	Second Analysis.	Mean.
Carbon.....	0.100	0.122	0.111
Silicium.....	0.095	0.082	0.088
Sulphur.....	0.098	0.096	0.094
Phosphorus.....	0.117	....	0.117

To complete the series of products in the conversion of pig iron into wrought iron, we analyzed the scoria or slag which remained in the furnace after the balls had been taken out, and found its composition to be as follows:

	Mean.
Silica.....	16.53
Protoxide of iron.....	66.23
Sulphuret of iron.....	6.80
Phosphoric acid.....	3.80
Protoxide of manganese.....	4.90
Alumina.....	1.04
Lime.....	0.70
	100.00

Therefore in the scoria are found the silicium, phosphorus, sulphur and manganese which existed in the pig iron; and probably the phosphorus and silicium are removed from the iron by their forming fusible compounds with its oxide.

We shall conclude this paper by giving our results in a tabulated form, so that the removal of the carbon and silicium may be better appreciated by those who may consult it with the view of obtaining such information as may lead them to



those improvements to which we think our investigations tend.

Pig Iron used.	Time.	Carbon.	Silicium.
Sample No. 1.....	12.40	2.275	2.720
" " 2.....	1.0	2.726	0.915
" " 3.....	1.5	2.905	0.197
" " 4.....	1.20	2.444	0.194
" " 5.....	1.35	2.305	0.182
" " 6.....	1.40	1.647	0.183
" " 7.....	1.45	1.206	0.163
" " 8.....	1.50	0.963	0.163
Puddled bar, No. 9	....	0.772	0.168
Wire iron, " 10	....	0.296	0.120
		0.111	0.088

Finally, we wish to express to Mr. Simeon Stokowitch our best thanks for the ability and perseverance which he has shown in helping us in these long and tedious analyses.—*Lond., Edin., and Dublin Philo. Mag.*

#### Wilmington and Manchester Railroad.

This company have issued their tenth annual report, from which it appears that the receipts for the fiscal year ending Sept. 30th, 1857, have been:

From passengers .....	\$271,505 19
" freight .....	148,260 78
" mails .....	42,760 00
Total .....	\$462,515 92

And the expenditures were:

Repairs of track, bridges, etc. ....	\$79,637 61
Repairs of engines .....	54,922 45
" cars .....	23,118 33
Fuel .....	21,048 10
Pay of conductors, engineers, etc. ....	34,187 45
Ferry .....	11,051 63
Salaries of officers .....	7,894 44
Balance paid S. C. R. R. ....	4,220 80
Miscellaneous .....	29,750 80
	\$265,831 11

Deduct for expenditures applicable to previous year .....

	61,215 38
--	-----------

Add unsettled accounts of past year .....

	16,691 90
	221,577 63

Leaving as net earnings.....\$240,938 29  
—or 53 per cent. of the gross receipts. As compared with the previous year's the gross earnings show a gain of \$40,131 70, or nearly 10 per cent.

The total amount received and disbursed by the treasurer during the year has been:

	Dr.
Cash and cash items .....	\$56,384 02
Increase of capital stock .....	8,485 86
Gain by investment of sinking fund. ....	4,110 00
Negro bonds—charged to transportation account .....	922 50
Receipts from transportation .....	462,515 92
	\$532,418 30

	Cr.
Current expenses of road .....	\$204,615 73
Accounts belonging to previous years. ....	61,215 38
Interest, and premium on exchange. ....	93,482 45
Reduction of debt .....	77,112 70
Interest on anticipated payment on capital stock, paid in stock .....	6,171 46
Construction .....	14,809 53
Filling trestles .....	8,845 00
On account of subscription to Cheraw and Darlington Railroad.....	799 42
Counterfeit money .....	338 00
Assets on hand .....	65,028 63
	\$532,418 30

If from the amount paid, belonging to previous

year, \$61,215 38, be deducted outstanding accounts for the past year, \$16,961 90, the balance will be found to be \$44,253 48; to which add amount of debt paid the past year \$77,112 70—will give \$121,366 18, as the total liabilities of the company liquidated during the year.

The amount carried to construction account, has been expended in the erection of an engine house at Marion, bridge over Green Swamp, Agent's house at Florence, cotton platform at Wilmington, passenger shed at Kingsville, etc.

Of the subscription of \$20,000 to the capital stock of the Cheraw and Darlington railroad, payable in transportation, there has been paid during the year the sum of \$799 42, which added to amount paid in previous years, \$18,411 80, will make \$19,211 22—leaving still unpaid \$788 78.

The bonded and floating debt of the company, amounting in the aggregate to \$1,213,909 25, is given in the following

#### GENERAL STATEMENT.

	Dr.
Paid for construction .....	\$2,379,167 59
" " filling trestle .....	13,222 09
Interest on stock .....	28,153 63
Interest account, including amount in hand of agents, to pay interest due .....	93,482 45
Paid sundry individuals on account of contracts, etc., not yet adjusted .....	6,402 13
Paid for Wateree and Hamburg Railroad Survey .....	2,389 07
Paid for Cheraw & Darlington R. R. Co., on account of stock .....	19,211 22
Wilmington and Weldon R. R. stock Due from Post Office Department .....	201,500 00
" .....	\$10,687 50
Bills receivable. ....	12,144 56
Due from sundry railroad companies .....	4,155 40
Due from agents .....	21,950 78
	48,938 24
Cash on hand in Commercial Bank, Wilmington .....	9,688 26
	\$2,802,154 68

	Cr.
Capital Stock .....	\$1,123,887 81
First Mortgage Bonds .....	\$596,000 00
Second do. ....	200,000 00
Income Bonds. ....	177,000 00
	973,000 00

Bonds secured by Wil. & Weldon R. R. stock .....	\$150,000 00
Bills payable .....	90,909 25
	240,909 25

Due on Negro Bonds, 1852, 1853, 1854, 1855, and 1856 .....	5,449 00
Scrip Bonds due contractors .....	5,000 00
Due on pay rolls .....	2,322 90
Due sundry persons on open account .....	43,270 67
Profit and Loss account .....	211,630 24
Net profits of the road for the past year .....	196,684 81
	\$2,802,154 68

#### United States Mint.

The following table will show the operations of the mint of the United States at Philadelphia, for the month of November:

	DEPOSITS.
Gold from California .....	\$1,399,320 00
Do. other sources .....	24,270 00
Total Gold .....	\$1,423,590 00
Silver deposits, including purchases. ....	\$373,304 00
Spanish and Mexican fractions of a dollar received in exchange for new cents .....	9,836 00
Total Silver .....	\$383,140 00

#### COPPER.

Cents (o. s.) received in exchange for new cents .....

	\$949 00
--	----------

#### COINAGE EXECUTED—GOLD.

Denomination.	Pieces.	Value.
Double Eagles .....	94,970	\$1,899,400 00
Eagles .....	7,200	72,000 00
Half Eagles .....	16,068	80,340 00
Dollars .....	56,686	56,686 00
	174,924	\$2,108,426 00

#### SILVER.

Half-Dollars .....	620,000	\$310,000 00
Quarter Dollars .....	1,316,000	329,000 00
Dimes .....	350,000	35,000 00
Half-Dimes .....	520,000	26,000 00
	2,806,000	\$700,000 00

#### COPPER.

New Cents .....	1,620,000	\$16,200 00
-----------------	-----------	-------------

#### RECAPITULATION.

Gold Coinage .....	174,924	\$2,108,426 00
Silver do. ....	2,806,000	700,000 00
Copper do. ....	1,620,000	16,200 00
Total .....	4,600,924	\$2,824,626 00

#### Debt of Louisiana.

The State debt of Louisiana on the 1st of January last amounted to \$10,703,142 05, of which the bonded debt was \$9,548,551, and the debts payable on demand, for trust funds, \$1,154,591. Of the bonded debt, \$6,322,551 is secured by the property of the Consolidated Association and Citizen's Bank, leaving the remaining liability in bonds \$3,226,000. The New Orleans *Picayune* says:

"With a nominal debt of upwards of ten millions, the real debt of Louisiana is less than four, and the interest which she pays annually is on that amount, part of which, however, goes into the sinking fund. The actual issue of bonds is not more than three millions, and the amount which is on the market about \$2,100,000. This three millions of bonds rests upon an assessed value of three hundred and twenty millions of dollars, subject to taxation, with an annual produce from the taxes, at the rates established last year, of \$1,372,285.

#### Cleveland and Chattanooga Railroad.

We learn from the *Chattanooga Advertiser*, that this road is rapidly progressing to completion. The line is 30 miles in length, 20 miles of which is now ready for the iron, and the heaviest part of the masonry and bridge work is in a finished state.—The iron for the greater distance of the road is on the ground and ready for laying, and would be put down if the company could command the necessary complement of cross-ties. The hard times has had no effect upon the company—instead of stopping work they have put on more hands. Under the management of its energetic President, the road is in a condition to be put through all finished and cars running in twelve months.

#### New Railroad Signal.

Some experiments were recently made on the Camden and Amboy Railroad, with a newly invented railroad signal for the prevention of accidents at drawbridges, crossings, switches and curves.—Its operation is as follows: At any desirable distance from the bridge, switch or crossing, two beams are slightly projecting from the rails; every wheel passing over the cams presses them down on a rock shift, with an arm to which a rod is attached reaching to the place of danger, which causes the ringing of a bell or gong at the place, giving notice of the approaching train; at the same time another bell or gong is rung beside the passing train, assuring the engineer that notice has been given, and that "All's right." The apparatus is so arranged that one bell cannot ring without the other. In moving from the bridge, switch, or crossing, neither bell can ring. The signal does away with the liability of accident by reason of neglect. By its construction it is impossible that a drawbridge can be opened or a switch, without notice being given.

## Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of \$100.

NAME OF COMPANY.	Length of Road.	Capital paid in.	Debt.	Total cost of road & equip't.	Gross Earnings for last official year.	Net Earnings for do.	Dividend for do.	Price of Shares.	NAME OF COMPANY.	Length of Road.	Capital paid in.	Debt.	Total cost of road & equip't.	Gross Earnings for last official year.	Net Earnings for do.	Dividend for do.	Price of Shares.
Atlantic & St. Lawrence	149	2,494,000	3,874,576	6,368,576	565,168	107,687	none	75	Brunswick and Florida, Ga.	30	300,000	300,000	550,000	In progr.	199,897	8	14
Androscog. & Kennebec	65	671,476	1,548,840	2,218,316	226,361	none	none	14	South-Western	92	1,394,100	441,292	1,716,731	366,214	29,405	8	85
Kennebec & Portland	72	1,107,526	1,763,798	2,871,324	237,264	none	none	85	Tennessee and Alabama	30	248,486	none	679,906	53,776	none	none	85
Portland, Saco, & Portland	61	1,390,400	1,104,586	2,494,986	324,767	174,025	none	9	Tennessee and Mississippi	287	2,238,177	3,495,288	5,672,470	642,022	334,504	none	9
Boston, Concord, & Montreal	63	1,809,032	899,813	2,708,845	317,687	113,077	none	8	Mobile and Charleston	198	3,155,181	1,824,960	6,515,470	419,711	217,609	none	8
Cambridge	55	2,085,925	8,242	1,412,576	317,050	125,954	none	37	Miss. Central	188	642,534	none	628,303	In progr.	111,707	none	37
Concord	32	1,500,000	346,608	3,068,400	418,032	159,430	none	32	N.O., Opelousas & G.W.	80	3,011,019	640,226	2,574,865	66,365	none	none	32
Northern, N. H.	31	3,068,400	800,000	1,784,146	174,308	76,182	none	2	N.O. Jackson & N.	130	4,011,019	1,816,610	3,500,000	189,003	none	none	2
Concord & Passumpsic Riv.	117	1,000,000	4,158,276	4,565,556	496,440	295,760	none	1	Vicksburg, Shreveport & Tex.	12	11,750,000	none	107,895	In progr.	none	none	1
Rutland & Burlington	122	2,233,376	4,923,299	8,402,054	765,935	214,793	none	66	East Tennessee and Va.	111	1,000,000	1,500,000	2,500,000	In progr.	none	none	66
Vermont Central	25	1,800,000	447,660	2,364,450	490,738	195,386	none	55	East Tennessee and Va.	45	625,425	247,662	1,033,781	31,018	none	none	55
Boston and Lowell	74	1,800,000	50,000	4,176,000	905,914	400,330	none	61 1/2	Nash. and Chattanooga	151	2,263,270	1,630,680	3,494,947	558,559	138,694	none	61 1/2
Boston and Maine	74	1,800,000	1,696,976	8,659,250	692,227	272	none	59	Covington & Lexington	98	1,302,804	2,235,939	3,738,753	284,973	188,694	none	59
Boston and N.Y. Central	43	3,160,000	277,435	8,654,969	692,227	272	none	77	Lexington and Frankfort	29	430,055	156,9	658,255	95,807	45,711	none	77
Boston and Providence	47	4,500,000	614,514	4,865,499	1,008,782	416,933	none	49 1/2	Lexington and Danville	13	694,444	71,000	765,555	95,807	45,711	none	49 1/2
Boston and Worcester	47	4,500,000	299,705	1,021,162	124,073	39,593	none	46 1/2	Louisville and Frankfort	65	698,239	669,091	1,589,566	243,035	110,440	none	46 1/2
Cape Cod	50	681,690	267,858	1,802,244	288,670	91,624	none	4	Atlantic & Gt. Western	264	866,937	77,294	613,231	In progr.	none	none	4
Connecticut River	60	1,611,110	2,674,136	4,687,436	717,869	321,943	none	38	Bellevue and Ind.	118	1,881,456	1,147,500	2,939,851	395,950	171,257	none	38
Eastern, Mass.	67	3,540,000	100,000	3,872,821	668,974	250,830	none	65 1/2	Clev., Col., and Cin.	141	4,741,200	103,489	4,731,628	329,754	700,804	9 00%	65 1/2
Fitchburg	21	600,000	none	541,588	188,925	27,827	none	6	Cleveland and Toledo	200	2,676,450	8,739,207	6,697,920	736,272	396,950	10 42%	6
N. Bedford and Taunton	77	3,015,100	260,100	3,362,949	683,357	305,140	none	77 1/2	Clev. and Mahoning	65	628,633	none	628,633	In progr.	none	none	77 1/2
Old Colony and Fall River	77	2,222,541	1,018,148	3,241,975	240,133	54,267	none	64	Clev. and Pittsburgh	133	2,780,744	3,043,992	6,537,466	681,777	309,518	14%	64
Vermont and Mass.	156	5,150,000	305,565	1,351,271	216,888	82,720	4 3/4	37	Cin., Hamilton & Dayton	60	2,155,800	1,526,092	3,180,315	555,709	194,107	none	37
Western, Mass.	45	1,411,000	305,565	1,351,271	216,888	82,720	4 3/4	37	Cin., Wilm. & Zanesville	131	1,761,749	2,587,432	5,320,271	221,792	none	none	37
Worcester and Nashua	43	1,510,020	339,000	1,781,045	344,773	155,044	none	7	Columbus and Xenia	65	1,490,456	149,000	1,526,476	402,212	181,688	10 82%	7
Providence and Worcester	72	2,356,000	944,000	3,241,975	240,133	54,267	none	113	Dayton, Xen. & Belpre	63	437,832	422,658	860,490	In progr.	none	none	113
Hartford and N. Haven	122	2,017,800	2,150,489	4,000,869	340,593	169,437	none	4	Dayton and Michigan	140	1,076,602	893,011	1,185,826	In progr.	none	none	4
Hartford, Prov. and Fishkill	74	1,631,800	524,244	1,880,728	329,297	47,881	none	46 1/2	Dayton and Western	35	310,000	700,481	1,036,173	125,940	65,263	17	46 1/2
Housatonic	57	1,301,800	524,244	1,880,728	329,297	47,881	none	46 1/2	Dayton and Hamilton	42	454,699	904,489	1,156,135	171,929	65,000	20	46 1/2
Naugatuck	57	1,301,800	524,244	1,880,728	329,297	47,881	none	46 1/2	Little Miami	65	2,981,282	1,324,668	3,798,993	806,424	363,376	15	46 1/2
N. York and N. Haven	36	738,258	781,462	1,460,318	88,007	30,318	none	13	Mad River and L. Erie	205	2,451,656	2,572,937	4,446,661	In progr.	none	none	13
N. Haven and N. London	36	610,500	1,053,000	1,663,500	120,671	51,444	none	13	Central Ohio	138	1,268,85	5,191,477	6,421,908	712,213	134,371	9 12%	13
N. London, W. & Palmer	36	610,500	1,053,000	1,663,500	120,671	51,444	none	13	Pittsb. Ft. Wayne & Chicago	383	5,994,144	7,344,822	17,118,511	1,111,626	662,117	9 12%	13
Norwich and Worcester	32	439,005	1,625,098	1,840,895	117,716	9,904	none	45	Pittsb. Mayv. & Cin.	50	371,356	31,000	390,933	In progr.	none	none	45
Albany Northern	35	643,330	117,355	974,323	In progr.	none	none	45	Sandy, Mansf. & Newk.	127	1,350,000	2,206,357	3,552,357	328,958	164,479	none	45
Black River and Utica	100	1,487,871	1,501,183	2,819,096	172,476	66,338	none	45	Scioto & Hocking Valley	56	403,975	509,650	888,858	In progr.	none	none	45
Buffalo, Conn. and N. Y.	92	738,439	2,537,849	3,401,868	288,892	31,896	none	74 1/2	Springf. Mt. Vernon & P.	118	1,000,000	950,000	1,950,000	In progr.	none	none	74 1/2
Buffalo and N. Y. City	89	1,300,000	1,040,000	2,494,364	679,750	356,763	none	10	Tol. Wash. & St. Louis	242	2,965,100	7,577,500	10,542,600	Recently opened	none	none	10
Buffalo and St. Line	47	434,111	922,393	1,276,796	174,089	69,506	none	10	Cin., Log. and Chicago	255	4,196,679	1,006,126	2,080,433	In progr.	none	none	10
Canandaigua and Elmira	35	1,315,000	2,279,854	3,495,832	135,433	48,649	none	19 1/2	Evansville & Crawfordsv.	109	706,941	1,177,956	1,844,541	127,400	64,552	7	19 1/2
Canandaigua & Niagara Falls	35	815,000	506,689	1,187,562	135,433	48,649	none	22	Ind. and Cincinnati	88	1,655,139	1,576,107	2,884,922	79,959	292,861	60	22
Dayton & Susquehanna	144	3,758,466	9,250,362	12,737,898	1,812,087	603,946	none	19 1/2	Indiana Central	66	612,356	1,261,179	1,909,911	430,004	249,518	45	19 1/2
Hudson River	95	1,875,148	668,949	2,555,986	301,793	116,462	none	22	Ind., Clev. & Pittsburgh	83	826,821	1,001,900	1,912,402	298,845	136,663	none	22
Long Island	537	24,186,861	14,788,897	39,975,758	7,773,089	4,007,867	none	74 1/2	Jeffersonville	60	1,014,252	694,000	1,708,252	206,544	94,318	none	74 1/2
New York Central	434	10,023,958	26,995,969	33,439,431	5,349,056	3,005,670	none	8 1/2	Madison and Indianapolis	87	1,647,700	1,336,816	1,206,000	286,146	112,880	none	8 1/2
New York and Erie	131	5,717,100	4,069,769	8,756,208	1,400,393	324,891	none	8 1/2	New Albany and Salem	288	2,635,121	5,281,448	6,643,189	645,827	371,402	none	8 1/2
New York and Harlem	118	1,633,022	4,406,874	5,470,714	620,153	135,764	none	1	Peru and Indianapolis	73	868,314	160,000	1,028,314	160,000	90,000	16%	1
Northern, N. Y.	35	899,130	216,545	741,618	146,191	77,083	3%	1	Terre Haute and Ind.	73	974,800	604,355	1,502,166	531,355	189,702	10	3%
Oswego and Syracuse	29	610,200	294,189	749,683	In progr.	none	none	1	Chicago and Rock Is'd	182	5,248,000	1,734,318	6,628,272	1,895,196	850,039	74	1
Potomac and Watertown	25	610,000	140,000	896,423	241,149	82,600	7%	1	Chicago and St. Louis	220	2,911,810	3,681,590	7,042,370	1,832,219	968,83	20	7%
Rensselaer & Saratoga	48	800,000	395,600	1,195,600	71,909	21,089	none	7	Chicago, Burl. and Quincy	146	2,911,810	3,681,590	7,042,370	1,832,219	968,83	20	7%
Saratoga and Whitehall	20	738,330	1,578,804	2,272,777	169,484	22,603	none	63	Cin., St. Paul & Ind. du Lac	178	2,900,000	1,325,000	3,625,000	In progr.	none	none	63
Syracuse & Binghamton	87	437,830	737,079	1,109,822	156,363	55,184	none	63	Galena and Chicago	269	5,441,500	3,318,039	7,742,614	2,316,786	1,192,042	22 73%	63
Troy and Boston	97	1,500,000	700,979	2,200,500	440,290	122,037	3%	63	Illinois Central	704	3,258,611	19,841,724	23,103,332	2,476,035	1,031,489	89	3%
Watertown and Rome	64	1,000,000	1,619,000	2,644,000	218,393	114,632	none	180	Peoria and Quawhita	93	569,889	818,454	1,388,342	In progr.	none	none	180
Belvidere and Delaware	94	800,000	1,140,720	1,940,720	1,640,787	694,114	12%	180	Ohio & Miss. (West Div.)	147	1,780,290	3,292,403	4,870,586	Recently opened	none	none	12%
Osiden and Amboy	60	848,000	1,550,854	1,738,171	117,789	45,542	none	119 1/2	Terre Haute, Alt. & St. Louis	208	3,110,650	4,450,802	7,496,716	588,476	305,348	none	119 1/2
Paden and Atlantic	30	842,860	748,000	3,517,180	190,636	509,921	10%	119 1/2	Detroit and Milwaukee	185	888,000	1,128,964	1,966,969	In progr.	none	none	10%
New Jersey Central	63	2,000,000	3,305,093	4,553,896	653,478	319,319	7%	6	Mich. Central	282	6,058,092	7,287,347	11,848,957	3,104,021	1,231,709	10 53%	6
New Jersey Central	63	1,157,805	352,500	1,652,927	245,685	86,250	6	6	Mich. South'n & N. Ind.	476	6,928,900	9,219,360	13,377,170	2,714,848	1,166,079	10 19%	6
Morris and Essex	44	1,837,867	842,564	1,958,317	Recently opened	none	none	6	Green Bay, Mil. & Ch.	155	764,07	442,726	1,182,765	In progr.	none	none	6
Albany Valley	63	1,700,000	1,940,000	3,640,000	219,253	52,450	none	6	Milwaukee and Miss.	251	2,976,011	3,493,155	6,152,076	680,472	372,691	1 32%	6
Ontario, Wil. & Erie	52	1,099,50															



## Railroad Bonds.

Extract from De Coppet & Co.'s Money Circular for the European Steamer of the 9th December.

[TRANSLATED.]

NEW YORK, Tuesday Dec. 8, 1857.

Our last advices were of 30th November. The leading feature of the week has been great irregularity in prices, and in the movements of Stocks. The uneasiness felt on account of the news expected from Europe has dampened the spirit of, and caused an abatement in, the activity which had characterized the preceding week. The decrease of activity has been more marked in State Stocks than in Railroad Shares, but the considerable falling off in the receipts of most railroads has contributed to the decline which the shares of some of these have suffered. Nevertheless, the continued abundance of money unemployed in commerce, has prevented a general downward movement, and the European news to 25th November, received yesterday, although far from being brilliant, is considered more encouraging, and has rather strengthened the Stock Market. Notwithstanding the exportation of \$1,808,750 in specie during the week, the metallic reserve of our banks has increased, reaching the unprecedented figure of \$26,069,832, and the liquidation of balances between the banks, which, since the suspension had been made exclusively in the notes of the interior banks of this State, admitted as circulation, begins to be made again, for the greater part, in specie. The country banks are gradually retiring their circulation, and smoothing the way for a future resumption of specie payments, both for themselves and for the City banks. State Stocks—Transactions have been very moderate in these. Missouri have declined 1c.; New Yorks are steady, as well as Tennessee 6s; Ohio 6s, long, have risen 1½; Kentucky 6s have advanced 1, and California 7s about 1½ per cent. City Bonds—A few Chicago 6s and Brooklyn 6s were done without change in price. Railroad Bonds—Illinois Centrals have been rather active, but have declined 5 per cent. Some Galena and Chicago 2d Mortgage were done at from 70a80. Some Milwaukee and Mississippi 1st Mortgage, 3d Section, at 75, and some Michigan Central 1st Mortgage from 82½a83. The various issues of the Erie Railroad have been inactive, without marked change in prices. Railroad Shares—The following have given rise to a moderate business, closing as follows: Erie at a rise of 1½; Reading at a decline of 1½; New York Central at an advance of 1½; Michigan Southern of 2½; and Cleveland and Toledo without alteration; Chicago and Rock Island, and Galena and Chicago, with limited transactions, have fallen 4 and 6 per cent. respectively. Money continues easy, at from 5a7 per cent. for loans on call. Paper out of bank is done only with great circumspection, at from 12a18 per cent. Foreign Exchanges are rather inactive, specie being shipped to considerable extent. Principal transactions on London 108½a109½, on Paris 5.27½ to 5.21½.

DE COPPET &amp; CO.

## Railway Accidents and a Uniform Speed.

At a late meeting of the National Association for Promoting Social Science, held in London, Lord Brougham read a lengthy paper on the prevention of railway accidents, in which he took the ground that the speed should be fixed by law, and should be moderate, not exceeding twenty or twenty-five miles per hour. He asserted that a very small number of travelers were willing to risk life and greater danger in order to save time by a high speed in traveling, while the great majority would prefer a moderate speed and greater safety. He alluded to the immunity from accidents on the railroads in continental Europe where the speed is regulated by law, and suggested the application of the same laws to British railroads.

It is unquestionably true that there is greater safety in traveling at a low than a high speed on railroads; but safety does not altogether depend on the speed of the train, but a number of other equally important conditions, such as the solidity and construction of the road itself, also

NAMES OF COMPANIES. (The following quotations are at interest.)	Amount of Loan.	Description of Bonds.	Rate Int.	Interest payable.	Where payable.	Due.	Offered.	Asked.
Alabama and Tennessee River	\$838,000	1st mortgage, convertible	7	1st Jan. 1st July	N. Y.	1872	85	
Buffalo and State Line	500,000	Do. convertible	7	April, October	"	1866	90	92½
Bellevue and Indiana	600,000	Do. convertible	7	Jan'y, July	"	1866	77½	
Do. do.	200,000	Real estate, convertible	7	Jan'y, July	"	1868		
Do. do.	200,000	Income, guar. Cl. Col. & Cia.	7	Feb'y, August	"	1869		
Central Ohio	1,250,000	1st mort. conv. east. sec.	7	Divers	"	1861-64	75	
Do. do.	800,000	2d do. convertible	7	March, Sept.	"	1866	80½	
Cincinnati, Hamilton, and Dayton	600,000	1st mortgage convertible	7	20 Jan. 20 July	"	1867	90	
Do. do. do.	465,000	2d do. do.	7	May, Novemb.	"	1880	75	
Cincinnati and Marietta	2,500,000	1st mortgage, conv. till 1862	7	Jan'y, July	"	1866	70	72½
Cincinnati, Wilmington, and Zanesville	1,300,000	Do. convertible	7	May, Novemb.	"	1862	75	
Cleveland, Painesville, and Ashtabula	567,000	Do. convertible	7	Feb'y, August	"	1861	88	92½
Cleveland and Pittsburgh	800,000	Do. convertible	7	Feb'y, August	"	1860	90	
Do. do.	1,200,000	Do. on Branches	7	March, Sept.	"	1873	70	
Cleveland and Toledo	625,000	Do. convertible	7	Feb'y, August	"	1863	85	
Chicago and Mississippi	800,000	Do. conv. till 1857	7	April, October	"	1862-72	65	
Do. do.	1,200,000	Do. convertible	7	April, October	"	1862-72	65	
Covington and Lexington	400,000	Do. do.	6	April, October	"	1867	67	70
Do. do.	1,000,000	2d mortgage, convertible	7	March, Sept.	"	1883	67½	
Delaware, Lackawanna, and Western	1,500,000	1st mortgage, do.	7	April, October	"	1875	75	
Florida Freehold	1,500,000	Do. not convertible	7	March, Sept.	"	1891	80	
Fort Wayne and Chicago	1,250,000	Do. conv. till 1863	7	Jan'y, July	"	1873	75	
Galena and Chicago	2,000,000	Do. convertible	7	Feb'y, August	"	1863	90	95
Do. do.	2,000,000	2d mortgage, do.	7	May, Novemb.	"	1875	79	82
Great Western (Illinois)	1,000,000	1st mortgage, do.	10	April, October	"	1868	92	
Green Bay, Milwaukee, and Chicago	400,000	Do. convertible	8	April, 10 Oct.	"	1863		
Jacksonville	300,000	Do. 2d sec. conv.	7	April, October	"	1873	77½	
Indiana Central	600,000	Do. convertible	7	May, Novemb.	"	1866	90	
Indianapolis and Bellefontaine	450,000	Do. do.	7	Jan'y, July	"	1860-61	76	80
Indianapolis & Cin'ti (for Lawb. & U. M.)	500,000	Do. conv. till 1857	7	March, Sept.	"	1866	85	87½
La Crosse and Milwaukee	950,000	1st mort. 1st sec. conv. till 1864	8	May, Novemb.	"	1874	80	
Lake Erie, Wabash, and St. Louis	3,400,000	1st mortgage, conv. till 1859	7	Feb'y, August	"	1866	45	
Little Miami	1,500,000	Do. inconv.	6½	May, 2 Nov.	"	1883	78	80
Michigan Central	1,000,000	No mortgage, convertible	8	April, October	East.	1860	93	
Do. do.	600,000	Do. do.	8	March, Sept.	"	1869	85	
Milwaukee and Mississippi	600,000	1st mort. 1st sec. conv. till 1857	8	Jan'y, July	N. Y.	1862	90	
Do. do.	650,000	Do. 2d do. 1858	8	April, October	"	1863	90	
Do. do.	1,250,000	Do. 3d do. 1860	8	June, Decemb.	"	1877	80	
New Albany and Salem	500,000	Do. 1st section	10	April, October	"	1858-62		
Do. do.	2,325,000	Do. oth. sec. con. till 1858	8	May, Novemb.	"	1864-75		
Northern Cross	1,200,000	1st mortgage, convertible	8	Jan'y, July	"	1873	90	
Ohio and Indiana	1,000,000	Do. do.	7	Feb'y, August	"	1867	90	
Ohio and Pennsylvania	1,750,000	Do. do.	7	Jan'y, July	"	1865-66	85	
Do. do.	2,000,000	Income, convertible	7	April, October	"	1872	70	
Pennsylvania (Central)	6,000,000	1st mortgage, conv. till 1860	6	Jan'y, July	Phila.	1860	89	
Racine and Mississippi	680,000	Do. conv. sink f'd	8	Feb'y, August	N. Y.	1875	81½	82
Scioto and Hocking Valley	300,000	Do. 1st sec. conv.	7	May, Novemb.	"	1861		
Steubenville and Indiana	1,500,000	Do. convertible	7	Jan'y, July	"	1865	80	
Terre Haute and Indianapolis	600,000	Do. do.	7	March, Sept.	"	1866		
Terre Haute and Alton	1,000,000	Do. do.	7	Feb'y, August	"	1862-72	58	60

NAMES OF COMPANIES. (The following quotations include the accrued interest.)	Amount of Loan.	Description of Bonds.	Rate Int.	Interest payable.	Where payable.	Due.	Offered.	Asked.
Baltimore and Ohio	2,500,000	Mortgage	6	April, October	Balt.	1885	78	80
Do. do.	1,128,500	Do. convertible	6	Jan'y, July	Balt.	1875	81	
Chicago and Rock Island	2,000,000	1st mortgage, conv. till 1858	7	10 Jan. 10 July	N. Y.	1870	93	94
Erie Railroad	3,000,000	1st mortgage	7	May, Novemb.	"	1867	99	100
Do. do.	4,000,000	2d mortgage, convertible	7	March, Sept.	"	1869	87	90
Do. do.	6,000,000	3d mortgage	7	March, Sept.	"	1863	68	69
Do. do.	4,000,000	Not conv. Sink Fund, \$420,000	7	Feb'y, August	"	1875	39	40
Do. do.	4,351,000	Convertible, Inscription	7	Feb'y, August	"	1871	30	32
Do. do.	3,500,000	Convertible	7	Jan'y, July	"	1862	36	45
Hudson River	4,000,000	1st mortgage, Inscription	7	Feb'y, August	"	1869-70	95	97½
Do. do.	2,000,000	2d do. do.	7	16 June, 16 Dec.	"	1860	80	82½
Do. do.	3,000,000	3d do. convertible	7	May, Novemb.	"	1870	82	84
Illinois Central	17,000,000	Mortgage, inconvertible	7	April, October	"	1875	82	82½
Do. (Free Land)	3,000,000	M'ge 345,000 acrs-priv. 7 shar's	7	March, Sept.	"	1860	80	82½
Michigan Southern	1,000,000	1st mortgage, inconvertible	7	May, Novemb.	"	1860	70	
New York and Harlem	1,800,000	Do. do.	7	May, Novemb.	"	1861-72	65	65½
New York and New Haven	750,000	No mortgage, do.	7	June, Decemb.	"	1865-66	82	84
New Haven and Hartford	1,000,000	1st mortgage, do.	6	Jan'y, July	"	1873	73	74
Northern Indiana	1,000,000	Do. do.	7	Feb'y, August	"	1861	75	
Do. Goshen Branch	1,500,000	Do. do.	7	Feb'y, August	"	1863	63	
New York Central	8,287,000	No mortgage, do.	6	May, Novemb.	"	1863	83	84
Do. do.	3,000,000	No m'ge conv. from June 57-59	7	15 June, 15 Dec.	"	1864	99	
Panama, 1st issue	900,000	Convertible till 1856	7	Jan'y, July	"	1866		
Do. 2d do.	1,478,000	Do. till 1858	7	Jan'y, July	"	1866	86	90
Reading, issued 1843	1,573,000	Mortgage, inconvertible	6	Jan'y, July	Phila.	1860		
Do. do. 1844, '48, '49	1,300,000	Do. convertible	6	Jan'y, July	"	1860		
Do. do. 1849	3,469,000	Do. inconvertible	6	April, October	"	1870	74½	75½

CITY SECURITIES.	Int't payable.	Off'd	Asked	CITY SECURITIES.	Int't payable.	Off'd	Asked
New York, 7 per ct. 1857	Feb'y,	92	96	Milwaukee, 7 per ct. coup.	X	Divers	65
Do. 5 do. 1858-60	May,	92	96	New Orleans, 6 per ct. cp. R. R. X	Do.	Do.	70
Do. 5 do. 1870-75	August, and	92	96	N. Orleans, 6 per ct. cp. municip. X	Jan'y, July	Do.	80
Do. 5 do. 1890	November.	92	96	Philadelphia, 6 per ct. 1876-98	Jan'y, July	86½	84
Albany, 6 per ct. coup. 1871-81 X	Feb'y, August.	99	100	Pittsburgh, 6 per ct. coup.	X	Divers	70
Albany, 6 per ct. coup.	X	99	100	Quincy, 8 per ct. coup.	1868 X	Jan'y, July	55
Baltimore, 6 per ct. 1870-75	Quarterly	89	91	Racine, 7 per ct. coup.	1873 X	10 Feb'y, Aug	85
Boston, 5 per ct. coup.	April, October	95	95	Rochester, 6 per cent. coup.	X	Divers	95
Brooklyn, 6 per ct. coup. Long X	Jan'y, July	90	90	St. Louis, 6 per ct. coup. Long X	Do.	Do.	72½
Clev'd, 7 per ct. cp. W. W. 1879 X	Do. do.	90	90	Do. Municipal	X	Do.	80
Cincinnati, 6 per ct. coup.	X	80	82½	Sacramento, 10 p. ct. cp. 1862-74 X	Do.	Do.	65
Chicago, 6 per ct. coup. 1873-77 X	Jan'y, July	80	80	S. Francisco, 7 p. cp. 1865, pay. N. Y. X	May, Novemb.	90	90
Do. 7 per ct. coup.	1880 X	85	90	Do. 10 p. ct. cp. 1871 X	Do. do.	85	89
Detroit, 7 per ct. cp. W. W. 1873-78 X	Feb'y, August.	90	90	Do. 10 do. pay. N. Y. 1875 X	Jan'y, July	Do.	87½
Dubuque, 8 per ct. cp. Long X	March, Sept.	100	100	Do. 6 per ct. pay. N. Y. 1875 X	Do. do.	80	80
Jersey City, 6 p. ct. cp. W. W. 1877 X	Jan'y, July	95	95	Wheshing, 6 per ct. coup.	X	Divers	60
Louisville, 6 per ct. cp. 1880-83 X	Divers	75	80	Do. 6 p. ct. cp. Mun. 1874 X	March, Sept.	81	81
Memphis, 6 per ct. coup. 1882 X	Jan'y, July	65	65	Zanesville, 7 do.	X	April, October	97

the engines and cars, and the skill and carefulness of the engineers and conductors.—*Scientific American*.

## American Railroad Journal.

Saturday, December 12, 1857.

### On Currency.—No. 4.

In what has preceded, we established the proposition, that the issues of a Bank having an adequate capital represent commodities which society requires for daily consumption, and that such issues, entitling their possessors to such commodities in amount equalling their nominal value, are worth just as much to the party holding them, as an equal value in gold and silver. We also showed that the necessary result of the use of symbols in effecting exchanges was a great saving in moving commodities from the producer to the consumer—the two sharing the amount saved between them. Each would consequently have a larger amount of means to offer for whatever commodities he might wish to purchase, which would necessarily rise in price, upon the ordinary principle of supply and demand. Such rise would, in part, be the measure of the saving effected. But such saving does not necessarily increase the prices of all commodities, though it will always increase the profits of the producers of them. The kinds of property, the values of which will be most affected, are those which are produced, or exist, in *limited or uniform* supply; such as lands, houses, and several kinds of minerals and agricultural products. A manufacturer, by an improvement in the mode of effecting exchanges, which reduces to him the cost of raw material, as well as the commodities necessary to the support of his workmen, is enabled to turn out his fabrics at a reduced cost. If he can maintain his prices, his profits will be increased in like ratio. But as a general rule he will reduce them, though not in the same degree, to the reduced cost of manufacturing. He will consequently have a larger amount of commodities in the shape of profits to exchange for such articles as he may have to purchase. Prices will change very much in the same degree as quantities. The same is true of all producers, as we have already shown in the case of the agriculturist, whose increased profits enable him to pay a higher price for lands he may wish to purchase. The use of symbols of value for currency, instead of gold and silver, increases profits where it reduces prices, while it increases prices of all articles, the supply of which cannot be immediately and indefinitely increased. Every class of society, therefore, is benefited by the rise of prices, as such rise is evidence of a corresponding saving in the machinery of business, which is always followed by increased production, which increase is the measure of the public gain.

We have thus far proceeded on the assumption of a currency of symbols representing commodities conveniently placed, and in a state fitted for immediate consumption, or their equivalents—consequently, under a well regulated system, the nominal amount of such symbols can never exceed the amount of such commodities. It is the function of a Bank, which is their depository, to lend them to parties engaged in producing, or moving from the producer to the consumer, commodities which have not yet received that final

preparation fitting them for consumption, or which require time in which to reach the consumer. Unless the producer can borrow commodities prepared for immediate use, he is obliged to have the larger portion of his capital in the shape of unfinished products, or such as are on their way to the consumer. The amount of fabrics produced would be reduced in like ratio. Hence we see that a currency cannot be based on the security of lands, since these are neither food nor clothing. Even should the value of the security far exceed the nominal value of the symbol, it would make no difference, as the lands would have to be sold and converted into commodities or money, before the symbol could be used. Value is not all that is wanted to a currency. The title deed of a farm may be very valuable, but no one would think of offering it as money. Consequently all Banks whose issues have been secured by real estate have proved signal failures. Issues based upon stocks, are liable, though in a less degree, to similar objections. The stocks may have to be sold and converted into gold and silver before the bills issued upon them will be taken as currency. To go through this process will require time, while the adequacy of the security, depending upon future contingencies, must always remain a matter of uncertainty. No currency of symbols is good for anything, unless the party issuing them have the possession, or the right to possession, of an equal amount of commodities of daily use, into which such symbols can be converted at the option of the holder of them.

For the reasons stated, what is termed a *safety* fund system is based upon principles radically false, in requiring for the bills of the Banks security for their redemption independent of commodities—thereby implying that they are not so secured. They can, however, as we have shown, be safely based upon no other kind of property. To compel Banks, therefore, to deposit securities for their notes, is to compel them to carry a *double* and superfluous capital, by which the very object of using symbols, instead of gold and silver, is, in a great measure, defeated. Under a safety fund system, properly conducted, the currency costs twice as much as it does under a system of free Banking, provided no interest, or income be realized from the securities pledged for the bills. But although these securities bear interest, it is usually at a very low rate, say, one-half that charged by the Bank. To make up for this loss, the Bank will, if possible, loan all its bills, and endeavor to keep them on the public, without any reference to the means, in the shape of commodities, it has for their redemption, and often without such means. Such issues do not, consequently, represent commodities, but are *simulations*. Being accepted for what they profess to be, they become the fictitious basis of enterprise and industry which otherwise would never have been put in motion, and which, having no adequate support, cannot fail to end disastrously. The commodities that stand behind bills of Banks properly issued, measure the degree of the ability of the public to purchase fabrics or values to be created. If there be none of the former, the manufacturer and producer will find themselves with their fabrics or products on hand, and no one able to buy them.

As Banks should be allowed to lend only the commodities they possess, for the same reason

payments to them should be always in similar commodities; otherwise they will soon find their capital changed into, and represented by, lands, stocks, bonds, and personal property of various kinds. A Bank properly conducted, therefore, is a conservative institution, compelling all to whom it lends, to confine their industry to articles in constant demand, and to limit the extent of their production to such demand. The borrower cannot pay his notes, unless he possesses an equivalent, in kind, to what was loaned him. So long, therefore, as only commodities are loaned, and the loans seasonably paid in similar commodities, the bills of Banks represent actual values, as much so as gold and silver, and perform an office entirely in harmony with the public welfare.

Of course, we assume the loans of a Bank to be made payable within a proper time. For illustration.—Suppose a Bank to make its loans payable in one year. The parties obtaining them, having so long a credit, will be apt to devote their entire attention to their business, and will be very likely not to attempt to sell any of their products, till they need their proceeds to pay their debts. Having had no check to the direction or extent of their industry, their products will very probably exceed the demand, or not be adapted to it, as this depends rather upon a particular style of finish of an article, than upon its value as measured by its cost. A Bank, consequently, can only give short credits with safety, as these force its creditors to confine themselves to the production of such articles, and in such quantities as the public are certain to buy. If a long credit be desired, it should be furnished by individuals who are willing to part, permanently, with the possession of their capital and accept thereof a stipulated annual income. The principles that apply in such cases will be considered elsewhere.

For the reasons stated, the strength of a Bank depends not upon the relative amount of gold and silver it possesses, (unless these, which is never the case, equal its entire liabilities), as upon the character of its bills receivable. The strength of the New York City Banks for a year preceding the first day of October last, was a matter of general remark and congratulation. "Our Banks are very strong," was the common phrase, which had reference, chiefly, to the amount of specie they held, which was the only resource *instantly* available in the payment of their liabilities. Their condition may be stated in round numbers as follows:

Assets.	Liabilities.
Specie .... \$12,000,000	Deposits... \$75,000,000
Bills rec'ble. 120,000,000	Notes ..... 8,000,000
Total .... \$132,000,000	Total .... \$83,000,000
Excess of assets ... \$49,000,000	

Suppose, in the course of a week or two, this statement should have varied so as to stand as follows:

Assets.	Liabilities.
Specie .... \$8,000,000	Deposits... \$65,000,000
Bills rec'ble. 120,000,000	Notes ..... 7,500,000
Total .... \$128,000,000	Total ..... \$72,500,000
Excess of assets ... \$55,500,000	



Such a statement would have been received with universal alarm, although the position of the Banks had been really and materially strengthened, their assets over their liabilities being increased \$6,500,000. The apprehension would rest mainly upon the smaller relative amount of specie to their liabilities. But in the favorable condition supposed, the ratio of specie to liabilities was as 1 to 7, showing the utter inadequacy of the former to the latter. The real strength of the Banks, consequently, consisted in their ability to demand specie payments from the public, equal to the amount of the claims of the public upon them; or in other words, the goodness of their bills receivable. Our Banks are thus liable to be pronounced very strong, when in fact they may be very weak. For them to have \$10,000,000 of suspended debts would not be considered of much moment, but it is the same as if \$10,000,000 in specie had been taken from their vaults, though the sudden loss of so large a sum in gold and silver, would cause their failure in ordinary times. The Banks, unquestionably would not have suspended specie payments, had all their bills receivable been promptly paid. No alarm in such case could have been raised. No demand would have been made for specie. The Banks would have been enabled to have continued their customary accommodations. As it was, the specie reserve was well maintained till the day the Banks failed. But their refusal to lend any further, threatened to leave the public without any currency whatever. Could the Bank managers have maintained their self-possession, and have found a sufficient number of bills safe to lend upon, they would have supplied all the currency needed, and saved the catastrophe. But their course was taken as evidence of a lack of strength in means on hand, or in the power to command them, and their creditors, though owing on bills receivable, made a simultaneous rush for whatever available capital of the Banks they could come at. As soon as the alarm subsided, and the solvency of the Banks was established, the same parties who drew out the specie in such haste, carried it back again, (and with it as much more, so that our Banks now have \$26,000,000, instead of \$12,000,000,) preferring even the bills and credits of non-specie paying Banks as currency, to gold and silver. What better testimony is wanted of the superiority of the former to the latter, for all the purposes of effecting exchanges?

So manifest, in fact, is the superiority of symbols over gold and silver in effecting exchanges, that the latter have almost entirely ceased to perform any function but that of capital. In the settlements at the clearing house, in this city, the gold used in the payment of its balances is to be considered as capital rather than currency, it being paid out in liquidation, rather than in exchange for equivalent values received at the moment in return. The same is true in the ordinary transactions of society. There are at the present time in the United States \$300,000,000 in gold and silver coin and bullion. This sum is not in circulation, as all know. It is not in the Banks. The ratio of gold and silver in the Banks of the United States is less now than it was in 1837, the period of the greatest weakness in our history. The tendency is steadily to its disuse as currency. The greater part of the coin in the world is hoarded; that is, held as capital, to be only used as capital,

when used. The greater part of all the vast sums yearly received from California and Australia is hoarded, as the returns of the Banking institutions throughout the world go to prove. Notwithstanding the immense increase in the general volume of trade and currency, the Bank of England finds it impossible to keep its specie reserves up to the point maintained when the transactions of business did not equal one quarter the present extent. Both history and experience confirm the correctness of our reasoning. Their teaching should far outweigh the crude and incoherent assumptions of shallow empirics, no matter how conspicuous the stations they may happen to occupy.

#### How much can be Saved by the Use of Coal over Wood.

Very numerous experiments have been made in burning coal in locomotive engines, with results averaging pretty nearly as follows: With coal at \$6 per ton, the cost is about ten cents per mile; at \$5, a little over eight cents; at \$4, a little more than six cents, and so on, in like ratio.

We will suppose that coal costs the following roads \$6 per ton, which is at least one dollar more than what it can be had for in quantity. The saving by its use will be seen in the following table. The sums paid for wood are taken from the latest reports of the companies that we have been able to obtain:

Roads.	Amount paid for Fuel.	Miles run.	Cost per mile.	Am't to be saved by Coal.
N. Y. Central..	\$847,853	3,984,290	21.3	\$149,424
N. Y. & Harlem	130,961	567,091	24	74,252
N. Y. & N. Hav.	121,420	485,461	22	72,874
Hudson River..	236,690	927,748	26.82	143,866
Hartford & N.H.	80,270	325,235	24.7	47,746
Western.....	224,659	1,027,618	22	121,957
Boston & Worcester	131,322	568,454	23.2	74,676
Boston & Maine	105,849	552,335	19.2	50,610
Boston & Lowell	70,191	297,798	23.5	40,411
Bost. & Providence	70,085	295,703	23.7	40,514
Eastern.....	84,274	386,075	21.8	45,666
Taunton Branch	12,791	34,320	37.2	9,359
T. & N. Bedford	20,920	58,378	35.8	15,083
Norw. & Worcester	50,073	279,438	18	22,130
Phil., Wilmington & Baltimore.	91,600	459,976	19.8	45,003
Mich. Central..	273,605	1,679,178	16.2	105,088
Chic., Burlington & Quincy...	153,890	769,200	20	76,902

\$2,706,553 12,696,268 21.3 1,435,561

The amount saved by the roads named, by the use of coal instead of wood, all other things being the same, would be \$1,270,992, a sum equal to the interest on \$20,900,000. We ask these companies, and the public, whether this matter of fuel be not worthy their attention. Its cost is in fact the great moth that is eating up the earnings of our roads.

But the mere cost of the fuel is not all. Most companies keep on hand very nearly a year's stock. So much capital consequently is lying idle. The New York Central has nearly \$700,000 in wood on hand. The interest on this sum should be reckoned at 10 per cent., to cover waste, depreciation, risk of loss, &c. With the use of coal, a stock worth \$100,000 would be ample, as the supply could be made constant, no preparation being required for its use.

#### North-Western Railroad.

The Parkersburg Gazette says that this road is now doing a brisk business, vast amounts of freight being daily dispatched eastward, while the westward transportation is considerable.

#### Finances of the United States.

#### REPORT OF THE SECRETARY OF THE TREASURY ON THE STATE OF THE FINANCES.

Treasury Department, Dec. 8, 1857.

Sir,—In compliance with the act of Congress, entitled "An act supplementary to an act to establish the Treasury Department," approved May 10, 1800, I have the honor to submit the following report:

On the 1st July, 1856, being the commencement of the fiscal year 1857, the balance in the treasury was .....\$19,901,325 48

The receipts into the treasury during the fiscal year 1857 were \$68,631,513 67, as follows:

For the quarter ending September 30, 1856:

From customs .....	\$20,677,740 40
From public lands..	892,380 39
From miscellaneous sources .....	355,310 57
	<hr/> 21,525,431 36

For the quarter ending December 31, 1856:

From customs .....	\$14,243,414 90
From public lands..	808,252 86
From miscellaneous sources .....	123,999 59
	<hr/> 15,175,667 35

For the quarter ending March 31, 1857:

From customs .....	\$19,055,328 55
From public lands..	1,565,640 11
From miscellaneous sources .....	274,054 90
	<hr/> 20,895,023 56

For the quarter ending June 30, 1857:

From customs .....	\$9,899,421 20
From public lands..	1,063,213 28
From miscellaneous sources .....	172,756 92
	<hr/> 11,135,391 40

The aggregate means, therefore, for the service of the fiscal year ending June 30, 1857, were .....\$38,532,839 12

The expenditures during the fiscal year ending June 30, 1857, were \$70,822,724 85,—being for the quarter ending

September 30, 1856 .....	\$18,675,113 21
December 31, 1856.....	17,940,877 90
March 31, 1857 .....	17,245,932 68
June 30, 1857 .....	16,960,801 06

Total.....\$70,822,724 85

—which was applied to the several branches of the public service as follows:

Civil, foreign intercourse, and miscellaneous .....	\$27,531,922 57
Service in charge of Interior Department.....	5,358,274 72
Do. War Department .....	19,261,774 16
Do. Navy do. ....	12,726,856 69
Purchase of public debt, principal, premium, and interest .....	5,943,896 91

Total.....\$70,822,724 85

Deducting the expenditures from the aggregate means during the fiscal year, a balance was left in the treasury on July 1, 1857, of \$17,710,114 27

During the first quarter of the current fiscal year 1858, being from July 1, 1857, to September 30, 1857, the receipts into the treasury were:

From customs .....	\$18,573,729 37
From public lands..	2,059,449 39
From miscellaneous sources .....	296,641 05
	<hr/> 20,929,819 81

Transport.....	\$20,929,819 81
The estimated receipts during the three remaining quarters of the current fiscal year to June 30th, 1858, are:	
From customs.....	\$33,000,000 00
From public lands..	3,000,000 00
From miscellaneous sources.....	750,000 00
	<hr/> 36,750,000 00

Making an estimated aggregate of means for the service of the current year.....\$75,309,934 08

An exposition of the grounds on which this amount of revenue from customs during these three quarters has been estimated, is given in a subsequent part of the report.

The expenditures of the first quarter, ending September 30, 1857, of the current fiscal year, were \$23,714,528 87; being for—	
Civil, foreign intercourse, and miscellaneous services.....	\$7,315,789 00
Service in charge of Interior Department.....	3,240,098 99
Do. War Department.....	7,290,950 83
Do. Navy do.....	3,915,906 99
Purchase of the public debt, principal, premium, and interest....	1,951,782 56
	<hr/> \$23,714,528 87

The estimated expenditures during the three remaining quarters of the current fiscal year to June 30, 1858, are.....51,248,530 04

Total.....\$74,963,058 41

Leaving an estimated balance in the treasury on July 1, 1858, which will, of course, be affected by any reduction or increase of expenditure not contemplated, of...\$426,875 67

Estimates for the fiscal year, from July 1<sup>st</sup> 1858, to June 30, 1859.

Estimated balance in the treasury on July 1, 1858.....	\$426,875 67
Estimate of receipts from customs for the year ending June 30, '59.	60,500,000 00
Estimated receipts from the sales of public lands.....	5,000,000 00
Estimated receipts from miscellaneous sources.....	1,000,000 00

Aggregate of means for the service of the fiscal year to June 30, '59, as estimated.....\$75,926,875 67

The expenditures are estimated as follows:

Balance as existing appropriations for the service of the present fiscal year, which may be applied to the service of the year ending June 30, 1859.....	\$16,586,588 35
Amount of indefinite and permanent appropriations.....	7,165,224 49
Estimated appropriations proposed to be made for the service of the fiscal year, from July 1, 1858, to June 30, 1859, as detailed in the printed estimates.....	50,312,943 13

Aggregate estimated expenditures for the service of fiscal year to June 30, 1859.....\$74,064,755 97

Leaving an estimated balance in the treasury on July 1, 1859, of...\$1,862,119 70

It is difficult at all times to estimate in advance the probable receipts into the Treasury for the next one and two years. Our revenue being derived principally from duties on imported merchandise entered at the Custom Houses for consumption, the amount is necessarily dependent not only upon all those causes which affect trade and commerce, but on such as control the inclinations and ability of the people in the purchase of such merchandise for consumption.

Ordinarily an approximation can be made as to the probable result, provided no unlooked-for cause shall intervene to disturb the usual course of trade and consumption.

The events of the present fiscal year furnish a striking illustration of the uncertainty of all such estimates from the operation of unforeseen causes which exert a controlling influence over the revenue from Customs.

When the estimates for the present fiscal year were made to the last Congress by my predecessor, it was impossible to foresee either the material change in the rates of duty, which were among its last acts, or the present revulsion in trade and commerce, both which have deeply affected the revenue, and satisfactorily account for the difference between his estimates and those now submitted. With these two disturbing causes now in view, it is very difficult to form satisfactory estimates of the probable receipts from Customs. The tariff act of March 3, 1857, has not been in operation long enough to test its effects upon the revenue even under ordinary circumstances. Simultaneous with this act going into operation, the country is subjected to a disastrous revulsion. To what extent importations would have been affected by it, had there been no revulsion in trade and commerce, is now as much a matter of conjecture as it was before the passage of the act. Experience has thrown no light on the subject. The probability is, that it would, to a limited extent, have increased importations, though not to the extent of supplying the deficiency created by the reduction of the duties.

In submitting to Congress, under these circumstances, estimates of the receipts for the present and the next fiscal year, it is deemed proper to accompany them with a statement of facts and principles upon which they have been made, in order that Congress may pass its own judgment upon the credit to which they are entitled.

The exports and imports of the United States have always borne a relative proportion, the respective amounts not often differing materially from each other. Both have steadily increased, with occasional exceptions, with the growth and progress of the country. In seeking, therefore, to ascertain the probable importations into the country, the amount of our probable exports constitutes an important element in the calculation. The exports for the year ending June 30, 1857, amounted to \$362,949,144, and the imports for the same period were \$360,890,141. The amount of our exports depends not only on the quantity, but the value of the articles exported. The quantity of some, and the value of others, may be considerably diminished, and yet the deficiency thus created may be supplied by either the increased quantity or value of other articles. It is probable that this very state of things may occur during the present fiscal year. The indications at present are, that the exports of breadstuffs and provisions will decrease both in quantity and value; but the increased value of cotton, at its probable prices, which constitutes much the largest item of our exports, would make up such deficiency. From the best information which can be obtained, the opinion is entertained that the exports for the present fiscal year will not fall below those of last year more than ten per centum.

Looking to the importations for the last ten years, it may be safely stated that the ratio of annual increase has not been less than ten per cent.; though within that period there were two years in which there was a falling off. This was attributable, doubtless, to temporary causes which do not affect the general proposition.

The foreign merchandise subject to duty imported during the first quarter, ending 30th September last of the present fiscal year, amounted to \$88,819,385; and the customs received during that quarter were as stated in the estimates, \$18,573,729 37. The tariff of the 3d of March last having gone into operation on the first day of that quarter, the circumstances under which a considerable portion of that amount was realised were so exceptional as to form no satisfactory guide for the remaining three quarters of the present fiscal

year; and it becomes an important consideration, in view of the probable means in the treasury to meet existing appropriations, to approximate the amount of merchandise subject to duty which will be entered for consumption during that period.

In making the estimates herewith submitted, the amount of merchandise subject to duty imported during the corresponding three quarters of the last fiscal year were taken, being \$210,000,000, to which ten per centum was added for the annual increase, had there been no disturbing causes—giving for the amount of merchandise paying duty, under the existing tariff of 1846, an aggregate of \$231,000,000.

The inquiry now presents itself, To what extent will this approximated amount of merchandise paying duty be diminished by the revulsion that has come upon the country?

An answer to this inquiry constitutes the most serious difficulty in the way of making an estimate of the receipts into the treasury from customs. Looking, however, to our probable exports, the great resources of our country, its unexampled prosperity in many branches of industry, its capacity to recover from temporary pressure in its trade and business, the opinion is expressed, with some confidence, that the reduction from this cause will not exceed twenty-five per centum. This would bring the amount of merchandise paying duties down to about one hundred and seventy-four millions for the remaining three quarters of the present fiscal year. For several years the average rate of duty upon all dutiable merchandise, by the tariff of 1846, appears to have been within a fraction of twenty-five per centum, which would produce on that amount forty-three millions of dollars.

The next point of inquiry is, How much will this sum be diminished by the reduced rates provided by the act of March, 1857?

From the calculations made of duties under that act upon the importations of the last fiscal year, compared with the amount of duty actually realized under the tariff of 1846, it appears that about one quarter should be deducted for the effect of the tariff of 1857. Ten millions of dollars have, therefore, been deducted on that account, making the probable receipts from customs, during the remaining three quarters of the present fiscal year, thirty-three millions, which has accordingly been placed in the estimates.

It will, of course, be understood that the returns of dutiable merchandise, from which these inferences are drawn, are of merchandise imported, while the customs revenue is exclusively derived from merchandise entered for consumption. In these estimates the amount of merchandise imported is supposed to equal the amount entered for consumption. In periods of commercial difficulty, like the present, the amount of merchandise imported and placed in warehouse without payment of duty will, no doubt, exceed the amount entered for consumption; but such excess is generally temporary, and is soon obviated by diminished importations and increased withdrawals for consumption, which restores the equilibrium without giving occasion for the discussion of such details in any general statement of the revenue.

The receipts from customs for the next fiscal year, from July 1, 1858, to June 30, 1859, will depend in a great measure upon the extent to which commercial and monetary transactions shall have returned to their ordinary channels. It is probable that the immediate effects of the present revulsion in trade will have ceased by that time, and that the usual amount of dutiable merchandise will be required for consumption. The estimate submitted is based on the amount of three hundred and seventy millions of dutiable merchandise, being the amount assumed for the present fiscal year with the usual increase, and without any deduction for the effects of the present revulsion. Upon this amount the customs, under the act of 1846, with the deduction heretofore explained for the effect of the tariff of 3d March last, would produce about sixty-nine and one-half millions of dollars.

The annual estimates in detail, as prepared by



the Register of the Treasury, are presented separately by this department. These estimated expenditures are divided into three classes:

1. Balances of unexpended appropriations which may, and probably will, be required by the respective departments in the course of the next fiscal year.

2. Expenditures under indefinite and permanent appropriations. In this class was placed the standing appropriation made by the joint resolution of February 14, 1850, of \$2,450,000 for expenses of collecting the customs. It is proposed to change this permanent appropriation for annual appropriations of increased amounts, for reasons set forth in another part of this report. In the meantime, as the proposition has not been sanctioned by Congress, the estimate remains in this class.

3. In the third class are comprised the estimates submitted by direction of the several executive departments, as necessary to be appropriated to carry on the several branches of the public service in their charge for their next fiscal year. These three classes comprehend the estimated expenditures for the fiscal year ending June 30, 1859, as set forth in this report. Neither these estimates, nor those for the remainder of the present fiscal year, include any provision for deficiencies, or other objects which the several departments may ask for during the present session, nor for any expenditure whatever which may arise out of the original action of Congress during the session. To meet such additional expenditures as may be required from these sources, further means must be provided.

The efficiency of the public service, as well as the security of the public credit, requires that this department shall be provided with means to meet lawful demands without delay. During the remainder of the present fiscal year, it is estimated, as before stated, that sufficient revenue will be received in the course of the year to meet the ordinary outstanding appropriations. But the great bulk of the revenue being derived from duties on merchandise payable only when it is entered for consumption, the period when such duties will be realized is entirely uncertain, being left by law to the option of the importers during three years.—The present revulsion has caused a very large portion of the dutiable merchandise imported since it commenced to be warehoused without payment of duty. To what extent this practice will be pursued during the present fiscal year, is too much a matter of conjecture at present to risk the public service and the public credit upon the probability of an immediate change in this respect. It may be safely estimated that in the course of the present fiscal year, a large portion of the merchandise now in warehouse will be withdrawn and duties paid thereon; but, in the meantime, adequate means for meeting lawful demands on the treasury should be provided.

Such provision should be made at the earliest practicable period, as a failure of sufficient means in the treasury may occur at an early day. The exigency being regarded as temporary, the mode of providing for it should be of a temporary character. It is, therefore, recommended that authority be given to this department by law to issue treasury notes for an amount not to exceed twenty millions of dollars, payable within a limited time, and carrying a specified rate of interest, whenever the immediate demands of the public service may call for a greater amount of money than shall happen to be in the treasury, subject to the Treasurer's drafts in payment of warrants.

The fact that such temporary exigency may arise from circumstances beyond the foresight or control of this department, makes some adequate provision to meet it indispensable to the public security.

Previous to the passage of the act of March 3, 1849, which requires all money receivable from customs and other sources to be paid into the treasury without abatement or diminution, the whole expenses of collecting the revenue from customs were defrayed from the moneys collected, and the balance only was paid into the treasury.

The expenses of collecting the customs in California and Oregon were excepted from the operation of that act by the third section of the act of September 28, 1850, and the mode of defraying the expenses of collection, which existed previous to the act of March 3, 1849, has been consequently continued at the Custom-houses on the Pacific Coast up to the present time.

The joint resolution approved 14th February, 1850, makes a permanent appropriation for the expenses of collecting the customs, of one million two hundred and twenty-five thousand dollars, for each half year, together with such sums as may be received for storage, &c., until Congress shall act upon the subject. During the first four years of the operation of the act of 3d March, 1849, the expenses did not equal the amount of this appropriation, and a considerable balance had accumulated, which has enabled this department to defray the expenses of the last four years, which have considerably exceeded the amount so appropriated, as is shown by statement marked 4.

This accumulation having become entirely exhausted, this department will not be able longer to defray the expenses of collecting the customs, unless Congress shall now act upon the subject.

In order that this important branch of the public service may be conducted with promptitude and efficiency, I recommend that Congress shall, at its present session, legislate upon this subject, to operate from the 1st of January, 1858, which will put an end to the permanent appropriation under the joint resolution, from that date.

#### Journal of Railroad Law.

##### THE MECHANICS' LIEN LAW NOT APPLICABLE TO RAILROADS.

It is well known that there is a law in force in this and most of the other States, by which any person performing labor, or furnishing materials toward the erection of a building, has a lien upon such building and the land upon which it stands, to the value of the work or materials furnished. No case has arisen in this State to determine the applicability of this law to the bridges and culverts or other similar erections necessary in the construction of railroads. The case of *Dunn against the North Missouri Railroad*, however, decides this point for the State of Missouri, and as the statutory provisions on the subject in that State and the State of New York are very similar in terms, it would doubtless be considered as reliable authority in case the question should come up for adjudication in any of our courts.

The action in the case referred to was to enforce a lien alleged by the plaintiff to exist upon certain culverts belonging to the North Missouri Railroad Company, for the construction of which the plaintiff had furnished materials and upon which he had performed work and labor. The defendants demurred to the claim on the ground that there was "no law authorizing a lien on the culverts of a railroad. The demurrer was sustained, and the case carried up on appeal, upon which the decision was affirmed, Judge Scott delivering the opinion of the court.

"The question in this case does not turn on the signification of the words 'buildings or other improvements,' in the first section of the act for the security of mechanics and others erecting buildings or furnishing materials in St. Louis county. It might be conceded that those words are sufficiently comprehensive to include bridges and culverts and still the question would recur whether a material man or laborer under the above mentioned act, has a lien for materials furnished or service rendered in the construction of a public railway authorized by an act of the General Assembly.

Although railroad companies, in some respects, resemble private corporations, yet, as they are organized for the public benefit, the State takes a deep interest in them, and regards them as matters of public concern. They are looked upon by the laws as corporations endowed with capacities for the promotion of the public good and for the diffusion of advantages to the State as a body politic. Our constitution requires that internal improvements shall forever be encouraged by the government of the State, and it is her right and duty to advance the commerce and promote the welfare of the people by making or causing them to be made. The establishment of the North Missouri Railroad is to be regarded as a public work, established by public authority, intended for the public use and benefit, the use of which is secured to the whole community; and an injury to it is a public injury; and the public benefit is the ultimate end and purpose of all the powers and privileges conferred by its charter.

The only principle on which the legislature could have authorized the taking of private property for its construction without the owners consent, is that it was for public use. After the immense responsibility the State has assumed in building this and other railroads for the public use and convenience, it would be unreasonable to suppose a power remained in any individual to deprive the public of the benefit contemplated by them. A lien, with a power of enforcing it by execution, would enable the lienholder to subject the portion of the road affected by it to execution, and the execution, to be effectual, must confer a title to a purchaser under it. A power to affect by liens to be enforced by execution on public buildings might put it out of the power of the State to possess any public edifices. Would a mechanic or laborer, under the lien law, have a right to a lien for materials or services furnished in building a Capitol for the State? Shall buildings intended for the public benefit be taken from the public as soon as they are completed, or their completion be prevented by a sale of them, and the State be forever deprived of buildings for the accommodation of her agents.—It is said that it is better to suffer a mischief which is peculiar to one than an inconvenience which may prejudice many. But this is no mischief to the plaintiff.

He would subject the public to this great inconvenience, not because the public is in debt to him, not because he has not the same remedy for his debt that every other member of the community has, but that he may enjoy a privilege conferred on no other class in society. In some of the States where there was no express exemption from taxation either in the charter of the company or the general law of the States, railways and works of a public character have been exempt from taxation upon principles of public policy. In thus following out the consequences of the claim set up by the plaintiffs, we do not wish to be understood as expressing any opinion on the question, whether independently of a statute authority, a railroad built under the authority of the State for public use can be sold under execution. The subject of securing to laborers payment for work done on railroads has not escaped the attention of the legislature. The act of 24th February, 1853, entitled "An act to authorize the formation of Railroad Associations, and to regulate the same, by its 12th

section, makes provision for the security of laborers performing service on railroads. Had the idea been entertained that the law of 24th February, 1853, respecting mechanic's liens in St. Louis county, was applicable to railroads, the necessity of the provision above referred to would not be so apparent. The other judges concurring, the judgment will be affirmed.

#### COLLECTIONS ON SUBSCRIPTIONS TO STOCK—PURCHASE OF CAPITAL STOCK WITH CITY BONDS.

The case of *Lakenan agt. The Hannibal and St. Joseph Railroad Company*, which was also decided in the State of Missouri, presents a point of some interest in regard to the commissions paid by railroad companies for the collection of subscriptions to capital stock.

The action was brought to recover compensation for services alleged to have been rendered by the plaintiff as collector for the company. It seems that by a resolution of the directors, the plaintiff was authorized to solicit and collect subscriptions to the stock of the company, and was to be allowed a compensation of one per cent. on the amounts collected by him; which rate was subsequently increased. The plaintiff sought to recover his usual commission on bonds of Marion county and of the city of Hannibal, which the company had agreed to receive in lieu of money in payment of calls upon their stock, and which the plaintiff received as collector and delivered to the treasurer of the company. The bonds were to so large an amount, that the commissions, had they been allowed would have been two or three thousand dollars.

The case was brought before the Supreme Court, on an appeal from a decision of the Common Pleas, which was in favor of the plaintiff.

SCOTT, J.—The only question in the case is, whether the receiving of the bonds from the city and county and the delivery of them to the treasurer of the company and taking his receipt therefor, were services within the terms of the contract with the plaintiff to collect calls on the subscriptions to the stock of the company. It can hardly be necessary to state that the designation of the plaintiff as "Collector" by the treasurer of the company, did not make him such, as there is nothing in the record which shows that the treasurer had any authority to bind the company by such admission, or that he had any power to contract for the company in relation to the subject.—The failure of the plaintiff to charge his commission for receiving the bonds in his previous accounts for services in collecting which were settled is certainly a circumstance against him, and the force of that circumstance is strengthened by the fact that the claim of compensation for such services was not made until after he left the company's employment. There is a responsibility in receiving money which is not incurred in taking bonds. The board must have had an eye to this responsibility in fixing the compensation for collection. We see all the collectors receiving the same commission. From this we may infer that similar services were, in the contemplation of the company, to be performed. There are counties in which collections were to be made where it does not appear that any bonds were to be received. The city and county having made arrangements with the company by which their bonds were to be taken instead of the money, they were no longer to be called upon for money by the collectors, such

an arrangement placed them beyond the sphere of the contract by the collectors with the company. After the agreement by the company to receive their bonds, the collectors had no authority to call on them. By measuring the commissions of the collectors by a "per cent," there was a clear indication that money only was to be received. The taking of bonds is not a collection of money in the ordinary sense of the term "collect." After the bonds are received the money is still to be collected on them. Two of the three judges concurring in the decision that the commissions could not be awarded to the plaintiff, and the third being absent, the judgment was reversed and the cause remanded.

#### Coal in Washington Territory.

The coal veins recently discovered at Bellingham Bay, on Puget Sound, in Washington Territory, are reported to be of great extent and value. Nearly four thousand tons had been dug and sold at last accounts, most of which found a market at San Francisco. None of the coal yet shipped, however, equals that now in process of excavation, which is said to be of the very best quality, and the indications are that the bank of this quality is inexhaustible. Previous to the last excavation, Dr. Evans made an analysis of inferior specimens of the coal, and found the result to be as follows:

Specific gravity.....	1346.
Carbon in coke.....	60.23
Volatile gases.....	26.85
Moisture.....	10.51
Ashes.....	1.94
Sulphur.....	.47
	100.00

Dr. Evans, the geologist, speaks in high terms of this coal, and says it will produce an excellent coke, and is well suited to manufacturing and domestic purposes. It burns very freely, and although rather light for long sea voyages, unless the construction of furnaces should be changed, lessening the draft, is suitable for river navigation. It is used to great advantage by the steamers *Active* and *Constitution* on the Sound. The mines are as yet worked but to a very limited extent, only half a dozen men being employed where there should be forty or fifty, to make the works remunerative. The coal is likely to prove of great importance in developing the resources of the countries on the Pacific coast.—*Boston Journal*.

#### Southern Pacific Railroad.

We learn from the *Marshall Republican*, of Oct. 31, that the President of this Company has executed a deed of trust to Benj. Long, Wm. Bradford, and J. K. Yerger, wherein all the lands of the Company within the county of Harrison, together with the whole road bed of the road between Marshall and the Eastern terminus at Swanson's Landing, the iron laid down or on hand along the line, the two locomotives, the chairs, spikes, and cars, and all the franchises and privileges of the company within the State of Texas are "bargained, sold, transferred, conveyed and released" to the said party of the second part, to secure the payment of a list of debts thereafter named, reserving the right to contract a preferred debt to the amount of \$30,000, for the purpose carrying forward the work necessary to save their charter from forfeiture.

This step is understood to have been taken by the directors in consequence of the return of protested drafts of the firm of Stillman, Allen & Co., of New York. The company have till January 15th, 1858, to meet the obligations incurred by the failure of this firm and the return of the drafts.—If these are met, the deed of trust will be null, and the company will still hold its road and privileges. We regret that the Directors have felt it necessary to resort to the measure adopted. There can be no doubt, however, that the installments due from the stockholders on the first of January, if promptly paid, would meet the obligation and release the company from embarrassment. It is however due from the directors to the stockholders that they should make an immediate exhibit of the actual

condition and resources of the Company—the amount of its indebtedness, the amount of stock issued, how much has been paid on it, and how much is yet due. Such an exhibit is due to the stockholders as their right, and to the Directors as exonerating them from the charges that might be made against them.—*Cincinnati Railroad Record*.

### PROPOSALS FOR A LOAN TO CHICAGO, BURLINGTON & QUINCY RAILROAD COMPANY.

SEAL proposals will be received by the undersigned at office No. 48 City Exchange, Boston, up to the 8th day of January next, at 1 o'clock P. M., for a loan of \$400,000, in money, payable as follows:

- 10 Ten per cent on the 15th of January, 1858, which first instalment the Company will retain with out issuing bonds therefor until the last instalment is paid.
- 25 Twenty-five per cent on the 15th of February, 1858.
- 25 Twenty-five per cent on the 15th of March, 1858.
- 20 Twenty per cent on the 15th of April, 1858.
- 20 Twenty per cent on the 15th of May, 1858.

For which bonds will be issued against each payment. For which the Company will issue 8 per cent Bonds of \$1,000 each, date 1st January, 1858, with semi-annual coupons, and having 25 years to run.

The proposals will be opened at the office No. 48 City Exchange, Boston, on the 8th day of January next, at 1 o'clock P. M., in the presence of the Board of Directors of the Company, who will award without reserve to the highest responsible bidder.

A circular will shortly be issued giving full information as to the financial condition of the Company, and the form of security to be given for the above named loan.

By order of the Board, J. W. BRIDGES, Comm. EDWARD L. BAKER, Sec.

Boston, Dec. 8, 1857.

### NEW YORK & HARLEM R. R. CO. PROPOSALS FOR A LOAN.

In order to fund the floating debt of this Company, an advance to carry \$750,000, a new issue of Mortgage Bonds to the extent of one million dollars, has been decided on by the Board of Directors as the best mode of relieving the Company from the embarrassment under which it labors by reason of the high rates of interest paid upon this debt.

Subscriptions are accordingly invited from all holders of the securities and stock of this Company, any for the purchase of the bonds that to be issued redeemable in ten years, and bearing seven per cent interest, payable semi-annually.

To give to the holders of secured bonds and outstanding extension certificates the preference of this loan, subscription, though solicited from all, will take precedence in the following order:

First Preference: To the holders of the unsecured Bonds of the Company redeemable in 1859, 1860, 1861, 1862, and 1863.

Second: To the holders of outstanding Extension Certificates.

Third: To the holders of Preferred Stock.

Payments to be made as follows: Forty per cent in cash, and sixty per cent, at par in the above-mentioned secured bonds, extension certificates, or preferred stock, at any time before the 15th day of January next. Any of the holders or acceptors of the Company which a due, and constituting a part of the floating debt, to be received as cash.

These Bonds will be secured by a mortgage on the whole road, its franchises, real estate, and rolling stock, subject to the first and second mortgages already given; but the mortgage here provided or will be a first lien upon extension certificates to the amount of one million five hundred and twenty-four thousand dollars, issued for the construction of fifty miles of the road from Dover Plains to Chatham, which certificates, now hypothecated as security for the floating debt, are to be redeemed by the proceeds of this loan.

As a further security to the purchasers of the new bonds, it is intended that \$30,000 a year shall be set aside (provided that sum is earned over and above expenses and interest) and employed to purchase in the market each year the bonds of this issue—such bonds so purchased to be immediately canceled.

Persons wishing to subscribe to this loan, or who are interested in the bonds or stock of the Company, are referred to the Company's Office, No. 33 Pine st., where a Committee of the Directors will be in attendance daily from 12 to 2 P. M. to give all required information respecting the terms of the loan and the condition of the Company.

By order of the Board, ALLAN CAMPBELL, Pres. DECEMBER 4th, 1857. 5150

#### Railroad Iron.

THE subscribers, Agents for the Manufacturers, are prepared to contract for the delivery of Railroad Iron at any port in the United States or Canada, or at a shipping port in Wales.

WAINWRIGHT & TAPPAN, 29 Central Wharf.

Boston, June, 1851.

#### Railroad Iron.

THE UNDERSIGNED ARE NOW PREPARED TO ENTER into contracts to deliver Railroad Iron free on board shipping ports in Great Britain, or at ports in the United States.

P. CHOTEAU, JR., SANFORD & CO., No. 9 Nassau st.

May 17, 1852.



## F. S. CABOT & CO., NEW YORK BUYERS, 86 Cedar st., near Broadway,

BUY TO ORDER, merchandise of every description. They give especial attention to the purchase of Railroad materials, fittings and supplies, and having "nothing to sell," whether patent articles or others, devote the entire energy to BUYING to the best advantage of those who employ them, feeling assured that they can serve purchasers much better than if they were also interested as sellers.

F. S. & Co. make it an invariable rule not to accept commissions from the seller, while receiving pay from the buyer.

They refer to W. G. Lambert of A. & A. Lawrence & Co., Wm. L. King or Naylor & Co., New York; Geo. Bary Bax of Blake, Howe & Co., Boston; David S. Brown of D. S. Brown & Co., Philadelphia; and others if required.  
Address a Box 1,179, New York 37tf

## RAILROAD IRON.

1,000 TONS Anti-Luminate Hammered Head Rail of the "Erie" Section, 87 lbs. per yard, here and to arrive. For sale by  
HENDERSON & KERNOCHAN,  
13 1/2 St.,  
41tf NEW YORK.

## A. N. GRAY, Cleveland, O.,

RECEIVER AND FORWARDER of Railroad Iron, Chains and Spikes.  
Also, Cars, Locomotives, and all kinds of Machinery for Railroad purposes.  
Office, next door to the Custom House Main street.

### Railroad Iron.

THE undersigned, Agent for the Manufacturers, is prepared to contract for T. Rails, of the usual patterns and weights, to be delivered on board ship in Wales.  
He will also receive and forward orders for the purchase of railroad iron and Metals generally, through the medium of his friends in London. For terms, apply to  
JOHN H. HICKS,  
90 Beaver street.  
April 1, 1853.

### Railroad Iron.

THE undersigned having leased the extensive works of the Cambria Iron Company, situated at Johnstown, Cambria County, Penna., and purchased all their personal estate are now prepared to execute at short notice orders for rails of any required pattern or weight, on the most liberal terms.  
WOOD, MORRELL & CO.,  
Johnstown, Cambria Co., Pa.  
ly29 Philadelphia Office: North Penna. B. R. Building.

### Railroad Iron.

THE undersigned, Agents for leading Manufacturers in Staffordshire and Wales, are prepared to contract for delivery on board ship at Liverpool, or Welsh port.  
C. CONGREVE & SON,  
13 Cliff St., N. Y.

## RAILROAD IRON.

The Crescent Manufacturing Company,  
WHEELING, VA.,

ARE now prepared to execute, at short notice, orders for Rail of any required pattern and weight, and to re-roll old rails, on the most liberal terms. Address  
N. WILKINSON, Sec'y,  
8tf WHEELING, VA.

### Railroad Iron.

700 TONS, about, or in store, of "W. Crawshaw's" make. For sale by  
THEODORE DEHON,  
10 Wall st., near Broadway,  
16 NEW YORK.

### Railroad Iron.

CONTRACTS for Rails, at a fixed price or on commission delivered at an English port, or at a port in United States will be made by the undersigned.  
THEODORE DEHON,  
110 Wall st., near Broadway, New York.  
500 tons T rails on hand 54 to 57 lbs. per linear yard.

### Railroad Iron.

2000 TONS Railroad Iron, weighing about 59 lbs. per yard, "Erie" pattern of G. L. and "Crawshaw," Manufacture, now on the way from the shipping ports in Great Britain to this port, for sale by  
P. CHOUTEAU, JR., SANFORD & CO.,  
December 4, 1852. No. 9 Nassau street.

### Railroad Iron.

THE Undersigned, Agents for the Manufacturers, are prepared to contract to deliver free on board at shipping ports in England, or at ports of discharge in the United States, Rails of superior quality, and of weight or pattern as may be required.  
VOSE, LIVINGSTON & CO.,  
New York, Aug. 1 1853. 9 South William Street.

## STEEL, FILES, &c. R. GROVES & SONS, SHEFFIELD, ENGLAND,

MANUFACTURERS of warranted Cast Steel, superior quality, for Tools, Machinery, and Engineering purposes. Single and Double Shear, Blister, German Spring and Sheet Steel of every description—also, Cast Steel Files of high reputation, especially adapted for the use of Machinists, and Saws and Edge Tools of all kinds.

A stock of the above goods constantly on hand.

CORPORATE MARK



CHAS. CONGREVE & SON, Agents,  
13 Cliff street, N. Y.

## IRON BOILER FLUES.

Lap-Welded Boiler Flues,  
1 1/2 to 7 inches outside diameter, cut to definite length, 2 to 20 feet as required.

Wrought Iron Welded Tubes,  
From 1/2 to 5 inches bore, with Screw and Socket Connections. T's, L's, Stops, Valves, Flanges, &c., &c.

MANUFACTURED AND FOR SALE BY  
MORRIS, TASKER & CO.,  
PASCAL IRON WORKS.

Warehouse—85 South Third st.,  
PHILADELPHIA.

## Morris, Jones & Co., IRON MERCHANTS,

Market and Sixteenth Streets,  
PHILADELPHIA.

### Iron and Steel

In all their varieties.

BOILER PLATE, CAR AXLES,  
BOILER RIVETS, RAILROAD IRON,  
OUT NAILS and SPIKES, PIG IRON, etc.

Having the selling agency of a number of the Rolling Mills, Furnaces and Forges in this State, orders for any descriptive Iron can be executed.  
August 16, 1854. ly23

## Railroad Iron and Common Bars.

THE undersigned, sole agents to Messrs. GUNST & Co., the proprietors of the Downais Iron Works, near Cardiff, South Wales, are duly authorized to contract for the sale of their G. L. Railroad Iron, and Common Bars, on most advantageous terms.  
R. & J. MAKIN, 70 Broad st.  
11tf

## CLARK & JESUP,

No. 44 EXCHANGE PLACE,  
RAILWAY AGENTS & COMMISSION MERCHANTS  
DEALERS IN FOREIGN AND AMERICAN

### Railroad Iron,

have for sale on commission—  
LOCOMOTIVE ENGINES  
PASSENGER AND FREIGHT CARS,  
WROUGHT AND CAST IRON CHAIRS,  
1y30 SPIKES, CAR WHEELS, AXLES, TYRES, &c.

### Railroad Iron.

2000 TONS, WEIGHING ABOUT 55 lbs. PER YARD now on the way from Great Britain to New Orleans, for sale by  
P. CHOUTEAU, JR., SANFORD & CO.,  
December 4, 1852. No. 9 Nassau street.

### Railroad Iron.

650 TONS 55a56 lbs. per yard, best Welsh Rails, GUNST & Co. make, now landing and for sale by  
VOSE, LIVINGSTON & CO.,  
9 South William st.,

### Railroad Iron.

1,000 TONS best quality Welsh Rails "Erie" pattern, 55a60 lbs. per yard, now due at New Orleans, or sale by  
VOSE, LIVINGSTON & CO.,  
No. 9 South William st., N. Y.  
October 18, 1854.

### Railroad Iron.

1,000 TONS Railroad Iron, weighing about 55 lbs. per yard, "Erie" pattern, of best quality Welsh make, now ready for delivery, for sale by  
VOSE, LIVINGSTON & CO.,  
August 1st, 1857. 9 South William st.

## RAILROAD IRON.

THE RENSSLAER IRON COMPANY,  
TROY, N. Y.,

OFFER Rails of their own manufacture deliverable as may be desired by purchasers.

### OLD RAILS

received in exchange for new or for re-manufacturing.  
JOHN A. GRISWOLD, Agent,  
Troy, N. Y.

New York Agent:

E. A. QUINTARD, corner of Wall st. and Broadway.

## New York and Erie R. R.

On and after Monday, Nov. 9, 1857, and until further notice, PASSENGER TRAINS will leave Pier foot of Duane street, as follows, viz:—

DUNKIRK EXPRESS, at 8 a. m. for Dunkirk and Buffalo, and intermediate stations.  
ROCKLAND PASSENGER, at 3 p. m. from foot of Chamber st., via Piermont, for Suffern's and intermediate stations.  
WAY PASSENGER, at 4 p. m., for Newburgh, Middletown and intermediate stations.  
EMIGRANT, at 5 p. m., for Dunkirk and Buffalo and intermediate stations.  
The above trains run daily, Sundays excepted.  
NIGHT EXPRESS, at 5 p. m. for Dunkirk and Buffalo, every day.

These Express Trains connect at Elmira, with the Elmira, Canandaigua and Niagara Falls Railroad, for Niagara Falls; at Binghamton with the Syracuse and Binghamton Railroad, for Syracuse; at Corning with Buffalo, Corning and New York Railroad, for Rochester; at Great Bend with Delaware, Lackawanna and Western Railroad, for Scranton; at Hornellsville with the Buffalo and New York City Railroad, for Buffalo; at Buffalo and Dunkirk with the Lake Shore Railroad or Cleveland, Cincinnati, Toledo, Detroit Chicago, etc.  
CHARLES MORAN, President.

## U. S. MAIL AND EXPRESS ROUTE DIRECT FOR Iowa, Kansas and Nebraska.

CHICAGO, BURLINGTON & QUINCY RAILROAD.  
THE ONLY DIRECT ROUTE FROM  
CHICAGO TO AUBURN, MENDOTA, PRINCETON,  
GALESBURG, QUINCY, BURLINGTON, ANY PART  
OF SOUTHERN OR CENTRAL IOWA, KANSAS  
OR NEBRASKA.

PASSENGER TRAINS leave the Central Depot, foot of South Water street, Chicago, daily as follows:—  
3.45 A. M.—MORNING EXPRESS—Connecting at Mendota with Illinois Central Railroad, north for Amboy, Dixon, Galena and Duane, south for La Salle, Bloomington, Decatur, Springfield, Jacksonville, St. Louis, Cairo, &c.; at Galesburg with Northern Cross R.R. for Quincy, &c.; and at Burlington with Burlington and Missouri River R. R. and with Packets for points up and down the Mississippi river.  
3.45 P. M.—EVENING EXPRESS.—Making same connections as above.  
NO TRAIN SATURDAY EVENING.

ONE TRAIN SUNDAY, 8.45 P. M.  
BAGGAGE CHECKED THROUGH TO BURLINGTON AND QUINCY.

THROUGH TICKETS can be procured at all the principal eastern railroad offices and in Chicago at the Depot and at the Michigan Central R. R. office, corner of Lake and Dearborn streets, opposite the Tremont House.

SAM'L POWELL, O. G. HAMMOND,  
Gen. Ticket Agent. Gen. Supt.

## Philadelphia, Wilmington & Baltimore Railroad. UNITED STATES MAIL ROUTE TO THE SOUTH AND WEST.

Trains will leave the Southern and Western Station, corner of Broad and Prime streets, Philadelphia, at 8 30 a. m. 12 45, 3 and 11 p. m.

FARE BY THROUGH TICKETS TO THE SOUTH.  
From New York to Wilmington.....\$15 50  
do do Norfolk.....8 50  
From Philadelphia to Wilmington.....14 00  
do do Norfolk.....6 50  
do do Petersburg.....9 00  
do do Richmond.....5 00

FARE BY THROUGH TICKETS TO THE WEST.  
From New York to Cincinnati.....\$17 00  
do do Louisville.....19 00  
From New York to Indianapolis.....19 00  
From Philadelphia to Cincinnati.....16 00  
do do Louisville.....18 00  
An extra charge will be made for meals and state rooms on board the boat.  
GEORGE A. PARKER, Supt.

**SAFETY AND ECONOMY.**  
**JAMES HARRISON, JR.'S,**  
**AUTOMATIC**  
**STEAM WHISTLE**  
**FOR**  
**LOCOMOTIVES.**  
**PATENTED APRIL, 1856.**

THIS invention renders absolutely certain the sounding of a sufficient alarm at every crossing or other point for which it is set. It is strong and simple, and not liable to derangement. It does not interfere with the ordinary use of the whistle in giving other signals, etc. It can be applied with little expense on old as well as new engines. For further information apply to

**JAMES HARRISON, JR.,**  
 Cor. of 32d Street and 3d Avenue.  
 New York, December 1, 1856.

**CAR AXLE WORKS,**  
**PENCOYD IRON WORKS,**  
**A. & P. ROBERTS,**  
 OFFICE AND WAREHOUSE BROAD NEAR VINE ST.  
 PHILADELPHIA, PENN.  
 HAMMERED CAR AND ENGINE AXLES.  
 ROLLED CAR AXLES AND BAR IRON.

**DELAPIERRE & LOCKWOOD,**  
 156 William, Cor. of Ann st., New York,  
 IMPORTERS AND DEALERS IN HEAVY HARDWARE,  
 Metals, Oils & other Materials for Machinists & Manufacturers.

Pig Iron,	Lead,	Horse Shoes,	Sperm Oil,
Block Tin,	Antimony,	Nails,	Lard Oil,
Copper,	Steel, etc.,	Vices, Anvils,	Emery,
Spelter,	Crucibles,	Belows, etc.,	Borax, etc.

**INSTRUMENTS.**

**Richard Patten & Son,**  
 MANUFACTURERS of Mathematical Instruments to the  
 U. S. Government, No. 23 South st., BALTIMORE, Md.

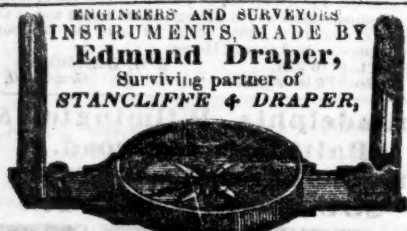
**James W. Queen,**  
 234 Chestnut st., PHILA., has for sale Engineers' Levels,  
 Transits, Chains, Tapes, &c. Priced catalogues by mail gratis.

**Swiss Drawing Instruments.**  
 SUPERIOR to all others. Catalogues gratis. Sold only by  
 AMSLER & WIRZ, 211 Chestnut st., PHILA., Pa.

**Wm. J. Young**  
 HAS removed his Engineering and Surveying Instrument Man-  
 ufactory to No. 33 North Seventh Street, Philadelphia.

**H. SAWYER**  
 (of the late firm of SAWYER & HOBBS),  
 MANUFACTURER of Transits and Levels, has removed  
 to Union Place, near Warburton Av., Yonkers, N. Y.

**Knox & Shain,**  
 Manufacturers of Engineering Instruments, 46½ Walnut st.,  
 Philadelphia. (Two premiums awarded.)



No. 23 Pear Street, below Walnut,  
 near Third St., PHILADELPHIA.

**W & L. E. GURLEY,**  
**INSTRUMENT MAKERS,**  
**TROY, N. Y.**

INVITE the attention of Engineers and Surveyors to the In-  
 struments made at their establishment.  
 Possessing facilities unequalled as they believe, by any other  
 manufacturers in the Union, they are enabled to furnish instru-  
 ments of superior quality, at lower rates than any other maker  
 of established reputation.

We have recently published a work of 30 pages, giving a full  
 description of our instruments, with their adjustments, prices,  
 &c., which we will send by mail free of charge, to all persons  
 contemplating the purchase of instruments.

Address—W. & L. E. GURLEY, Troy, N. Y.

**THE NORTH-AMERICAN**  
**SEAMLESS TUBE COMPANY**

ARE now prepared to furnish Rolled Metal Seamless Tubes,  
 superior for strength and durability to any heretofore  
 offered. Locomotive builders desirous of a pure copper tube  
 without seam can now be furnished at the same price as the  
 braided tube. Samples may be seen at the office of the  
 Agents,

**O. B. RAYMOND & CO.,**  
 1m45 No. 45 Cliff st.

**EUROPEAN AND NORTH-AMERICAN**  
**RAILWAY.**

**Notice to Contractors.**

SEALED Tenders will be received at this office until TUES-  
 DAY, 15th December next, at noon for the Grading  
 Masonry and Track-laying of those portions of the E. & N. A.  
 Railway between Hampton and Sussex Vale, a distance of  
 about 24 miles, and between Moncton and Sallisbury, a dis-  
 tance of about 16 miles.

The line will be laid out in five sections of about eight miles  
 each, for which separate tenders will be received.  
 Rails, Chairs, Spikes and Sleepers will be furnished by the  
 Commissioners. All other material and plant to be found by  
 the Contractors.

Tenders must be accompanied with names of responsible  
 parties willing to become security for the performance of the  
 Contract, or other satisfactory evidence of competency to  
 perform the work. The Commissioners do not bind them-  
 selves to accept the lowest tender.

Plans, Specifications and Forms of Tender may be seen at  
 the Engineer's Office on and after 1st of December next,  
 and in the meantime intending officers will have an opportu-  
 nity of examining the line, a large portion of which is approx-  
 imately located. The works on the line generally will be of a  
 substantial character, well worthy the attention of responsible  
 contractors.

**R. JARDINE, Chairman.**  
 RAILWAY COMMISSIONER'S OFFICE.  
 St. John, New Brunswick, Oct. 24, 1857.

**PROFESSIONAL CARDS.**

**Atkinson, T. C.,**  
 Mining and Civil Engineer, Alexandria, Va.

**Sylvester W. Barnes,**  
 Chief Engineer Watertown and Madison R. R., Madison, Wis.

**Edward Boyle,**  
 Chief Engineer, 2d, 3d, and 9th Avenue Railroads New York  
 Office 123 Chambers st.

**Clement, Wm. H.,**  
 Ohio and Mississippi Railroad, Cincinnati, Ohio.

**James Convers,**  
 Chief Engineer Galveston, Houston & Henderson Railroad,  
 Galveston, Texas.

**Alfred W. Craven,**  
 Chief Engineer Croton Aqueduct, New York.

**Charles W. Copeland,**  
 Steam Marine and Railway Engineer,  
 64 Broadway, New York.

**Davidson, M. O.,**  
 Chief Engineer Havana Railroad Company,  
 HAVANA, CUBA.

**C. Floyd-Jones,**  
 Division Eng'r 3d and 12th Divisions, Illinois Central R. R.,  
 Vandalia, Ill.

**Gay, Edward F.,**  
 State Engineer, Philadelphia, Pa.

**Gilbert, Wm. B.,**  
 Syracuse and Binghamton Railroad, Syracuse, N. Y.

**Robert B. Gorsuch,**  
 Chief Engineer of the Llanos de Apam R. R.,  
 MEXICO.

**Grant, James H.,**  
 Nashville and Chattanooga R. R., Nashville, Tenn.

**Theodore D. Judah,**  
 Chief Engineer, and Commissioner of  
 San Francisco and Sacramento Railroad, and of  
 San Francisco and Sacramento Northern Extension Railroad,  
 SAN FRANCISCO, Cal.

**S. W. Hill,**  
 Mining Eng'r and Surveyor, Eagle River, Lake Superior.

**Lord & Wright,**  
 Counsellors at Law, Cincinnati, Ohio.

**Ellwood Morris,**

Civil Engineer, Franklin Institute, Philadelphia.

**Mills, John B.,** Civil Engineer,  
 Lake Ontario and Hudson R. R., 20 Exchange Place, N. Y.

**Osborne, Richard B.,**  
 Civil Engineer, Office 73 South 4th st., Philadelphia.

**Theodore W. Robbins,**  
 Civil Engineer and Land Surveyor, Jersey City, N. J.

**W. Milnor Roberts,**  
 Civil Engineer, Carlisle, Pa.

**Augustus Schwaab,**  
 CIVIL ENGINEER, MACON, GEORGIA.

**J. S. Sewall,**  
 CIVIL ENGINEER,  
 ST. PAUL MINNESOTA.

**Charles L. Schlatter,**  
 Chief Engineer Brunswick and Florida Railroad,  
 Brunswick, Georgia.

**P. Sours,**  
 Engineer Raritan and Delaware Bay R. R., Red Bank, N. J.

**J. S. Shipman,**  
 Civil Engineer, 63 Trinity Building, 111 Broadway, N. Y.

**Shanly, Walter,**  
 Grand Trunk Railway, Toronto, Canada.

**Steele, J. Dutton,**  
 Pottstown, Pa.

**Charles B. Stuart,**  
 Consulting Engineer, 22 William str., New York.

**Trautwine, John C.,**  
 Civil Engineer and Architect, Philadelphia.

**A. B. Warford,**  
 Chief Engineer, Susquehanna Railroad, Harrisburg, Pa.

**NEW ENGLAND**  
**Mutual Life Insurance Co.,**  
**BOSTON, MASS.**  
**ESTABLISHED 1843.**

Branch Office in Metropolitan Bank Building, 110 Broadway,  
 NEW YORK CITY.

**JOHN HOPPER, Agent and Attorney for the Company.**  
**CAPITAL and accumulation of PREMIUMS to meet losses,**  
**\$910,000,**  
 After paying among all holding policies, in cash (not in scrip),  
 dividends amounting to  
**\$181,000.**

One-half of the first five annual premiums on life policies  
 loaned to insurers if desired; the remaining half may be paid  
 quarterly.

The premiums are as low as those of any reliable Company.  
 This is the oldest American Mutual Life Insurance Company  
 and one of the most successful.

Insurance may be effected for the benefit of married women  
 beyond the reach of their husbands' creditors. Creditors may  
 insure the lives of debtors.

**DIRECTORS**—WILLARD PHILLIPS, Charles P. Curtis, Thos.  
 A. Dexter, Sewell Tappan, A. W. Thaxter, Jr., Charles Hub-  
 bard, Marshall P. Wilder, Wm. A. Reynold's, Geo. H. Folger,  
 B. F. STEVENS, Secretary.

**REFERENCES IN NEW YORK:**

A. Oakley Hall, District Attorney, of New York City; Henry  
 Pierson; D. Randolph Martin, President Ocean Bank.

**AGENTS**

**MAINE**—N. P. Deering, Portland.

**NEW HAMPSHIRE**—John S. Harvey, Portsmouth.

**VERMONT**—T. W. Bruce, Middlebury.

**MASSACHUSETTS**—Hartley Williams, Worcester; W. E.  
 Taylor, New Bedford; S. W. Stickney, Lowell; L. Thorndike,  
 Salem; H. S. Noyes, Springfield; J. B. Swan, Nantucket.

**CONNECTICUT**—Chas. Robinson, New Haven; J. W. Good-  
 win, Hartford; H. P. Eaton, Norwich; Nath'l Greene, Bridge-  
 port; J. C. Learned, New London.

**RHODE ISLAND**—Charles H. Mason, Providence.

**NEW YORK**—John Hopper, 110 Broadway, New York City;

H. N. Dowd, Albany; J. W. Bissell, Rochester; Leonard Wil-  
 son, Buffalo; C. S. Moss, Lockport; B. B. Burt, Oswego; J.  
 H. Edmonds, Utica; D. E. Battershall, Troy.

**PENNSYLVANIA**—Robert Ralston, Philadelphia.

**DISTRICT OF COLUMBIA**—Charles Fletcher, Washington.

**OHIO**—Charles Bradburn, Cleveland; B. Urner, Cincinnati.

**MISSOURI**—Alonzo Cutler, St. Louis.

**ILLINOIS**—O. N. Holden, Chicago; George W. Woodward,  
 Galena.

**KENTUCKY**—James G. Breed, Louisville.

**SOUTH CAROLINA**—H. S. Hayden, Charleston; H. E. Nichols,  
 Columbia.

**ALABAMA**—R. S. Sinker, Mobile.

**MICHIGAN**—Edward A. Lansing, and Philip Furber, Detroit.

**WISCONSIN**—Philetus Hale, Milwaukee; L. C. Spoford,  
 du Lac.



**H. H. GOODMAN & CO.,**  
No. 7 WALL ST., NEW YORK,  
Dealers in Railway, City, County, and State  
**BONDS,**  
RAILS, LOCOMOTIVES, &c.  
We have on hand and for sale, of County Bonds—  
Hardin County (Ky.), 6 per cts. Davidson C'ty (Tenn.), 6 p.cts.  
Carter, Bath, and Montgomery (Ky.), 6 per cents. Iowa County (Wis.), 8 per cts.  
Also a variety of CITY, COUNTY, and RAILWAY  
SECURITIES in smaller lots.  
April 30th, 1886.

## CINCINNATI.

**HEWSON & HOLMES,**  
AUCTIONEERS AND STOCK BROKERS,  
Have regular sales of Stocks, Bonds, and other Securities  
EVERY  
WEDNESDAY AND SATURDAY,  
At 1 o'clock at the Merchant's Exchange,  
AND IF REQUIRED,  
**SPECIAL SALES**  
ON MONDAY, TUESDAY, THURSDAY, AND FRIDAY.  
Offices—Nos. 83 and 85 Walnut street.  
Where they offer at private sale  
A GREAT VARIETY OF  
State, County, City and Railroad BONDS and STOCKS  
NEGOTIABLE  
LOANS, NOTES, BILLS OF EXCHANGE,  
AND COLLECT  
DIVIDENDS, LEGACIES, DEBTS, &c.  
Reference—Ohio Life Insurance & Trust Company Bank

## CINCINNATI STOCK EXCHANGE.

**KIRK & CHEEVER,**  
Stock Brokers and Railroad Agents,  
NO. 83 WEST THIRD STREET,  
CINCINNATI, OHIO.  
Railroad Stocks, Bonds, &c., bought and sold on commission  
Regular sales at public auction at the MERCHANTS' EXCHANGE  
F.W. Rhineland, James A. Boorman, Edwin A. Post  
**RHINELANDER, BOORMAN & CO.,**  
RAILWAY AGENTS  
AND  
COMMISSION MERCHANTS,  
SUPPLY ALL MATERIAL AND ARTICLES USED IN THE  
CONSTRUCTION AND OPERATING OF RAILWAYS.  
BANK OF COMMERCE BUILDING, NEW YORK.

REFER TO  
John A. Stevens, Esq., President Bank of Commerce.  
Sam'l Sloan, Esq., President Hudson River Railroad Co.  
James Boorman, Esq., Messrs. Stiman, Allen & Co.  
Messrs. Cooper & Hewitt, Messrs. Duncan, Sherman & Co.

## REMOVAL.

**W. D. STARLING,** Metal Broker and Rail Inspector,  
from Lawrence Pountney Lane, to the Vestry House,  
Lawrence, Pountney Hill,  
LONDON, 1887.

## ENGINEERS.

## ENGINEERING.

THE undersigned is prepared to furnish Specifications, Estimates and Plans, in general or detail, of Steamships, Steam boats, Propellers, High and Low Pressure Engines, Boilers, Mill Work, etc., etc. Particular attention given to the procuring and superintending of Locomotives, Tenders, Cars, and Railway Machinery of every description.  
General Agent Ashcroft's Steam Gauge, Allen & Noyes' Metallic Self-adjusting Coal-packing, Dudgeon's Hydraulic Jack, Sewall's Sallinometers, etc., etc.  
Acts as Agent for the purchase or sale of, and has always on hand, Steamers, Locomotives, Engines, Boilers, Machinery, etc.  
**CHAS. W. COPELAND,**  
Consulting Engineer,  
44 Broadway, N. Y.

1017

**W. G. ATKINSON,**  
CIVIL ENGINEER, SURVEYOR AND DRAFTSMAN  
CUMBERLAND, Maryland.

RAILROAD routes located, planned and estimated. Maps and Reports furnished. Researches made for Coal, Iron, Copper, Lead and other Minerals, Metals, &c. Contract work in tunnels and heavy Graduation measured and reported in detail. Topographical Drawings executed and Lithographs supplied by skilful artists. Mines explored, new Works laid off and Geological Plans prepared.  
St

## ENGINEERING WORKS.

**REMOVAL.**  
**FRANCIS & LOUTREL,**  
STATIONERS, PRINTERS,  
LITHOGRAPHERS AND BOOKBINDERS,  
Have removed from their old stand to the new store,  
**45 MAIDEN LANE,**  
NEW YORK.

HAVING fitted up the entire building expressly for our business, we solicit orders for anything required in our line. We offer the largest assortment of *Blank Books, Paper and Stationery* both Fancy and Staple, embracing everything in our line. *Steam Job Printing*,—all our Presses, Type and Machinery are new, enabling us to execute the best style of work at moderate prices. Please call or send your orders.  
**FRANCIS & LOUTREL,**  
Stationers, Printers, Lithographers and Bookbinders,  
45 MAIDEN LANE, NEW YORK.

## LYONS' TABLES.

To Civil Engineers and Contractors.

JUST PUBLISHED.—A set of Tables for finding, at a glance, the true cubical content of Excavation and Embankments for all Bases, and for every variety of Ground and Side Slopes. By M. E. LYONS.

SHEET NO.	SHEET NO.
1. General Table for all Bases and all Slopes.	13. For Base 18 ft. Slope. 1 1/2 to 1
2. For Side Hill Cuts and Fills.	14. " 20 " 1 1/2 to 1
3. Base 12 ft. Slopes 1 1/2 to 1 1/2.	15. " 24 " 1 1/2 to 1
4. " 14 " 1 1/2 to 1 1/2.	16. " 28 " 1 1/2 to 1
5. " 15 " 1 1/2 to 1 1/2.	17. " 32 " 1 1/2 to 1
6. " 15 " 1 1/2 to 1 1/2.	18. " 36 " 1 1/2 to 1
7. " 15 " 1 1/2 to 1 1/2.	19. " 40 " 1 1/2 to 1
8. " 15 " 1 1/2 to 1 1/2.	20. " 44 " 1 1/2 to 1
9. " 15 " 1 1/2 to 1 1/2.	21. " 48 " 1 1/2 to 1
10. " 15 " 1 1/2 to 1 1/2.	22. " 52 " 1 1/2 to 1
11. " 15 " 1 1/2 to 1 1/2.	23. " 56 " 1 1/2 to 1
12. " 15 " 1 1/2 to 1 1/2.	24. " 60 " 1 1/2 to 1

The Tables are printed in clear, bold type on tinted paper: sheets 22x16 inches. They may be used by candle-light without injuring the eye-sight. Each sheet is complete in itself, and embraces all that is wanted in connection with the Base or Slope designated, whether on level or side hill cross section.

Sold in separate sheets, at 25c. each, or the whole hand-somely bound in cloth in one volume for \$7.50, by JOSEPH HUFTY, 139 Chestnut st., Phila.; WM. MINNIE, Baltimore, Md.; NEWBURY & SON, Alexandria, Va.; McCLEAN & Co., Toronto, O. W.; also

For sale at the office of this paper.

## ENGINEER'S FIELD BOOK

By C. S. CROSS, Civil Engineer.

THIS work is designed as a pocket companion, and embraces all the necessary tables for prosecuting railroad surveys in the most compact form.

It is subdivided as follows:

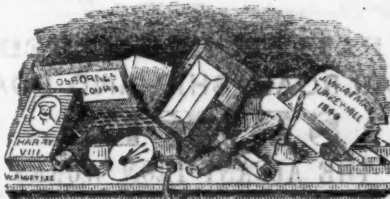
- 1st. The method of staking out railroad curves and keeping field notes.
- 2d. Railroad curve tables for expeditiously determining the points at which commences the curving.
- 3d. Application of the Prismoidal formula in determining the quantities of excavation and embankment of canals and railroads from transverse sections.
- 4th. Excavation and embankment tables for expeditiously determining the cubic yards from mean area.

It is a plain, clear and most valuable book for practical Railroad Engineers.

For sale at this office. Price \$1.

## Hufty's

Engineers, Architects and Draftsmen's  
**STATIONERY EMPORIUM.**



**WHATMAN'S TURKEY MILL DRAWING PAPER,**  
Tracing paper, Plan and Profile, Protractors, Drawing Plus, Faber's Jackson's and other makers' Pencils; Field, Level, and Memorandum Books of various patterns; Mathematical Instruments, Tape-lines, Mouth Glue, Cross Section paper, Triangles Label Brushes, Gum Bands, Maiden Gum, Red Tape, Ink, Inkstands and sand, Water Colors, Palettes, Patent Binders or letters, Portfolios, etc., together with a general assortment of Stationery and Blank Books.

All goods packed with care, and forwarded to any part of the United States.

May 15, 1886.

**JOSEPH HUFTY,**  
Successor to H. L. Lipman,  
139 Chestnut st., Philadelphia.

## WILLARD FELT &amp; CO.,

14 MAIDEN LANE, N. Y.,

## ACCOUNT BOOKS, PAPER AND DRAWING MATERIALS.

ENGLISH and American Drawing Paper in sheets and rolls  
—Cloth mounted Drawing Paper in rolls.—Tracing Paper and Muslin, Metallic and Linen Tapes.—Profile and Cross section Papers, Field Books, etc., etc., etc.

Maps, Bonds, and Stock Certificates Lithographed in best style. 6m28

## RAILROAD SUPPLIES.

**WILLIAMS & PAGE,**

No. 44 Water, between Congress and Kilby Streets,

## Boston, Mass.

Iron Rails, Chairs, & Spikes,  
FREIGHT AND COAL CARS,  
(on hand or made at short notice.)

Wheels and Axles of all kinds,

LOWMOOR, AMES, BOWLING, AND NASHUA TIRES,  
**IRON AND STEEL,**

Of all kinds for Shops and Tracks.

Car Trimmings, Paints, Oil, Varnish, Car and Switch Locks, Ventilators, Lanterns, Head-Lights, Gauges, Rubber Springs, Chains, Hose and Belting, Ash, Pine and other Timber, and ALL MATERIALS USED in Equipment and Repairs of Railroads, Engines and Cars, at lowest prices.

**THOS. S. WILLIAMS,** **PHILIP S. PAGE,**  
Late Supt. Boston & Me. R. R. Late Page, Alden & Co.

## REFERENCES.

**JAMES HAYWARD,** President  
Boston and Maine R. R.  
Capt. WM. H. SWIFT, Boston.  
LAWRENCE, STONE & Co., do.  
S. M. FELTON, Pres't Phila., W. & B. R. R.

**PHILIPS, DODGE & Co., N. Y.**  
**COOPER, HEWITT & Co., do.**  
**REEVES, BUCK & Co., Phila.**  
**E. S. CHESTERBROUGH, Chicago.**

## DRAKE &amp; CARTER,

49 Merchants' Exchange, Wall Street.

THE subscribers have formed a Co-Partnership under the name of **DRAKE & CARTER**, for the purpose of conducting the business of Buying and Selling Stocks and Bonds, Loaning Money on Stocks and other Securities, making Collections, &c.

The general partners of the concern will be **JAMES M. DRAKE** and **GLEN A. CARTER**. **EDWARD E. LITTLE** Esq. has contributed Fifty Thousand Dollars as special partner.

D. & C. will occupy the Offices No. 49 MERCHANTS' EXCHANGE, (entrance on Wall St.)

**JAMES M. DRAKE.** **GLEN A. CARTER.**

## MACHINE BELTING,

STEAM PACKING,

## ENGINE HOSE,

AND ALL OTHER ARTICLES OF

## VULCANIZED INDIA RUBBER

ADAPTED TO

Mechanical and Manufacturing Purposes.

THE superiority of these articles manufactured of vulcanized Rubber, is established. Every BELT will be WARRANTED superior to LEATHER—at one third less PRICE. The STEAM PACKING is made in every variety, and warranted to stand 300 degrees of heat. The HOSE never needs OILING, and is warranted to stand any required pressure. Also Gas Tubing, and Tubing for RAILROAD CAR BRAKES.

Pamphlets containing directors' prices, etc., can be obtained at our warehouse, or by mail Address

**JOHN H. CHEEVER, Treasurer,**  
**New York Belting and Packing Company,**

No. 6 Dey st.,  
NEW YORK.

1716

## Patent Machine Made Horse-Shoes.

The Troy Iron and Nail Factory have always on hand a general assortment of Horse Shoes, made from Refined American Iron.

Four sizes being made, it will be well for those ordering to remember that the size of the shoe increases as the numbers—No. 1 being the smallest.  
**WM. F. BURDEN, Agent.**  
Troy Iron and Nail Factory, Troy, N. Y.

## NEW ENGLAND RAILROAD MUTUAL FIRE INSURANCE CO.

Office, No. 11 Railroad Exchange, Boston.

THIS Company, composed of Railroad Corporations, insures on the Mutual principle, against loss by Fire, BUILDINGS, BRIDGES, ROLLING STOCK, and other property in which the members have an insurable interest.

**DIRECTORS:**  
H. Hooper, Uriel Crocker, Charles L. Putnam,  
Stephen Fairbanks, Wm. Minot, Jr., S. H. Walley,  
Wm. A. Crocker, I. M. Spelman, Waldo Higginson.

WALDO HIGGINSON, President.

CHARLES G. HOBART, Secretary.

## LACKAWANNA IRON AND COAL COMPANY, SCRANTON, LUZERNE CO., PA.

BY the completion of the Delaware, Lackawanna and Western Railroad, this Company are enabled to obtain the Magnetic Iron from the most celebrated mines in New Jersey, which used in combination with their native ores, produce a quality of iron not surpassed.

These works have been greatly enlarged the past year, and are, at the same time, prepared to execute orders promptly for RAILROAD IRON of any pattern and weight, Car Axles, Spikes, and Merchant Iron. They have on hand patterns for T rails, of the following weights per lineal yard, viz:—25, 30, 35, 40, 45, 50, 60, 62, and 75 lbs.

Samples of rails and Merchant Iron may be seen at the office of the Company, 25 William st., New York.

Address S. T. SCRANTON, President,  
SCRANTON, Pa.,  
or THEO. STURGES, Treasurer,  
25 William st.,  
NEW YORK.

404

## NEW YORK METALLIC CAR SPRING COMPANY.



**TRUSTEES:**  
CHARLES MINOT,  
President.  
COURTLANDT PALMER,  
Vice President.  
CHARLES ELY,  
Treasurer.  
P. G. GARDINER,  
THOS. B. NELSON.

**MANUFACTORY AND SALESDROOMS:**  
Nos. 316, 318, 320, 322 and 324 West 26th Street.  
OFFICE, 229 BROADWAY, NEW YORK.

WE MAKE the Company will have a suite of rooms, one of which will be fitted up for the accommodation of gentlemen connected with Railroads and Car build'rs, which we should be pleased to have them make their office during their stay in the city, having their letters directed to our care, and affording them every facility for correspondence, etc., free of expense.

During the Summer and Fall of 1856 and the Winter last past, this Company received a large number of orders for Springs which they were unable to fill, owing to a want of Steel of a quality such as is required for their manufacture. Large orders were sent to Europe for it which are now coming to hand.

We are now able to supply work in large quantities. The success of these Springs has now been fully established; they have been in constant use upon a large number of roads for the past year. The test during the past winter was a severe one, but their reliability has been even greater than was anticipated. They are now confidently believed to be eminently superior to any other Spring now in use for Railroad purposes. Parties who have delayed ordering for the purpose of waiting to hear of their success on other roads, need hesitate no longer, as their utility is now fully established. Orders are now solicited, stating at the same time the kind, size and weight of cars to which they are to be applied.

Address communications to

RICHARD VOSE, Secretary, N. Y.

## VENTILATION.

THE undersigned has devised and patented the only system of ventilation for Buildings, Vessels, RAILROAD CARS, &c., by which spontaneous ventilation can be effectually carried out; and is willing to dispose of the same to parties desirous of purchasing at a reasonable price.

Address HENRY RUTMAN, Chaboung, Canada.

## Railroad Iron and Chairs.

THE Lackawanna Iron and Coal Co. are now prepared with increased facilities to contract for Rails and Chairs at their works at Scranton, Penna.

Address S. T. SCRANTON, Pres't. at Scranton, or at the office of the Company in New York, 25 William st.

254

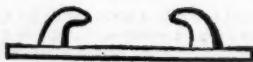
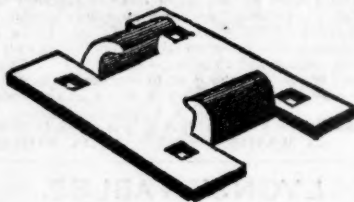
## NEW YORK Wrought Iron Railroad Chair COMPANY.

OFFICE, 8 BROADWAY, CORNER BEAVER ST.,  
(OPPOSITE THE BOWLING GREEN.)

NEW YORK.

ALEX. FREAR,  
Sec'y and Treas'r.

JACOB ROWE,  
PRESIDENT.



THIS Company is prepared to receive orders for the manufacture of WROUGHT IRON RAILROAD CHAIRS of the best material, on a new and superior model, and by improved patented machinery.

The thickness of the Lips of the Chair increases through the bed, where the greatest strength is required, and diminishes towards the edge;—so that a less weight of metal may be used, and a strength acquired equal, if not superior, to that of a heavier Chair of uniform thickness.

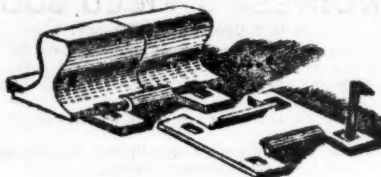
Our arrangements are now complete for executing work promptly, and all orders from responsible parties will be filled on short notice.

Our manufacture of Chairs are used by the following companies:

New Jersey Central Railroad Company,  
North Carolina Railroad Company,  
Grand Trunk Railway Company,  
Michigan Southern and Northern Indiana Railroad Company,  
Mississippi Central Railroad Company,  
Panama Railroad Company,  
Galveson and Red River Railroad Company,  
Illinois Central Railroad Company, etc., etc.

Address—ALEX. FREAR, Secretary and Treasurer,  
8 BROADWAY

## RAILROAD SPIKES.



WROUGHT IRON

## Chairs and Fastenings.

THE CALVERT IRON & NAIL WORKS continue to manufacture with increased facilities, HOOK & FLAT HEAD RAILROAD SPIKES, and WROUGHT CHAIRS and FASTENINGS of all patterns, also CUT NAILS, BOILER RIVETS, BOLTS, SHIP and BOAT SPIKES.

Long experience in the manufacture of these goods enables them to produce an article of superior quality and finish. They are in use upon a large number of roads in the country and are highly approved.

Orders filled promptly, and at the lowest prices.

J. HOPKINSON SMITH,  
Baltimore, Md.  
162

Please direct the name in full.

## PATENT HAMMERED RAILROAD, SHIP, AND BOAT SPIKES.

THE ALBANY IRON WORKS

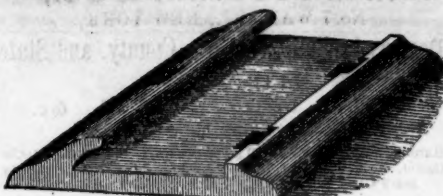
HAVE always on hand, of their own manufacture, a large assortment of RAILROAD, SHIP, and BOAT SPIKES from 2 to 12 inches in length, and of any form of head.

From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best SPIKES in market, both as to quality and appearance. All orders addressed to the subscribers at the works will be promptly executed.

J. B. JACKSON, Agent,  
Albany Iron Works, Troy, N. Y.

The above Spikes may be had at factory prices of Brasco, Corning & Co., Albany; and E. Pratt & Brother, Baltimore, Maryland.

## RAILROAD CHAIRS.



THE ALBANY IRON WORKS,  
TROY, N. Y.,

INVITE attention to their new pattern SOLID LIP Wrought Railroad Chair, which has been favorably received, and is now being laid upon some of the leading railroads of this country.

With every facility for manufacturing these as well as the ordinary form of Chairs they solicit a trial of them. Quality and workmanship guaranteed. Orders addressed to the subscriber, at the works, will be promptly attended to.

J. B. JACKSON, Agent,  
Troy, N. Y.

Or ERASTUS CORNING & CO., Albany, N. Y.

## RAIL ROAD CAR FINDINGS,

BRIDGES & BROTHER,

64 Courtlandt Street, N. Y.

WHEELS AND AXLES,

JAWS, BOXES, AND CASTINGS FITTED.

WROUGHT NUTS, BOLTS AND WASHERS

ENGINE AND CAR SCREW BOLTS, all SIZES,

COACH LAG AND TELEGRAPH SCREWS,

LOCOMOTIVE ENGINE LANTERNS,

From the BEST Manufacturers and at their Prices.

CAR, HAND and SIGNAL LANTERNS,

COTTON DUCK, FOR CAR COVERING,

of any required width to 124 inches.

ENAMELED HEAD LININGS,

The best article made in this country.

PLUSH and CURLED HAIR.

HAND CARS AND BAGGAGE BARROWS.

PASSENGER, FREIGHT-CAR, AND SWITCH

LOCKS, DOOR KNOBS AND BUTTS.

BRASS and IRON WOOD SCREWS.

BRASS AND SILVER PLATED TRIMMINGS

For Windows and Seats.

VARNISH, COACH JAPAN, AND GLUE,

Paints, Varnish and Glue Brushes.

SILVER PLATED AND WHITE METAL LETTERS,

ENGINE and SIGNAL BELLS

ANTI-FRICTION, OR BABBITT METAL,

PORTABLE FORGES & JACK SCREWS

HEMP PACKING, AMERICAN, RUSSIA AND ITALIAN.

CONDUCTOR'S BADGES, AND BAGGAGE CHECKS

Iron Bronzed and Brass Hat Hooks.

VENTILATORS AND WHITE METAL RINGS,

And all other Articles pertaining to Cars.

ALBERT BRIDGES, } Late Davenport & Bridges, Car Manufacturers, Cambridgeport, Mass.

ALFRED BRIDGES, } Late Davenport, Bridges & Co, Fitchburg, Mass.

Railroad Spikes and Wrought

Iron Fastenings.

THE TROY IRON & NAIL FACTORY,

EXCLUSIVE OWNER OF ALL

HENRY BURDEN'S PATENTED MACHINERY

FOR MAKING SPIKES,

HAVE facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

WM. F. BURDEN, Agent,  
Troy Iron and Nail Factory, Troy, N. Y.